Scanfish Flight Help

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1 Install from CD

To install the latest version of ScanFish, then insert the CD in your drive and an auto-run window pops up.

If not, then start the program D:\DotNetDetect.exe manually – where D:\ is your CD-ROM drive.

The window includes a link for ScanFish: in the example above it is “ScanFish Flight 1.1.0.117”. Press it and follow the instructions.

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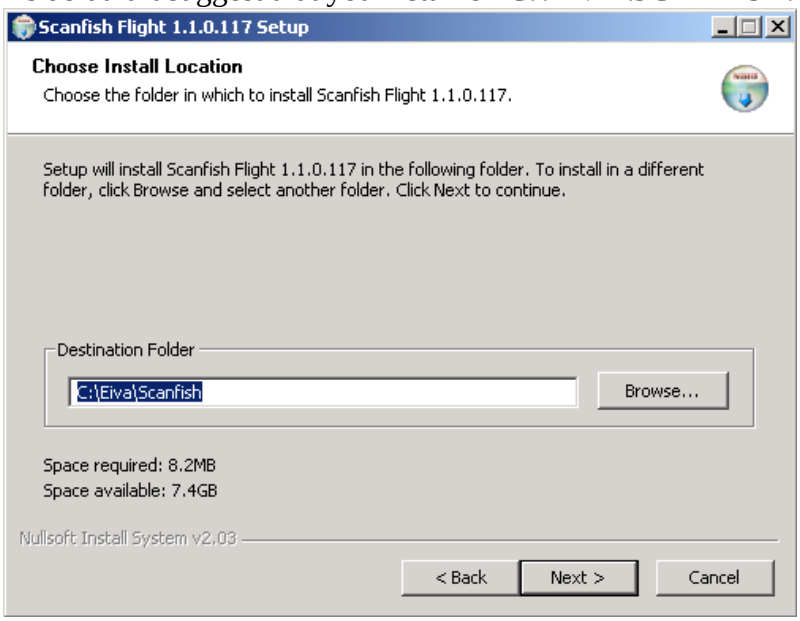
Scanfish Flight 1.1.0.117 Setup
Welcome to the Scanfish Flight 1.1.0.117 Setup Wizard
This wizard will guide you through the installation of Scanfish Flight 1.1.0.117.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel

As default it suggest that you install on C:\EIVA\SCANFISH:


Scanfish Flight 1.1.0.117 Setup
Choose Install Location
Choose the folder in which to install Scanfish Flight 1.1.0.117.
Setup will install Scanfish Flight 1.1.0.117 in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Eiva\Scanfish
Browse...
Space required: 8.2MB
Space available: 7.4GB
Nullsoft Install System v2.03
< Back
Next >
Cancel

If you want it differently, then press Browse and select a new folder.

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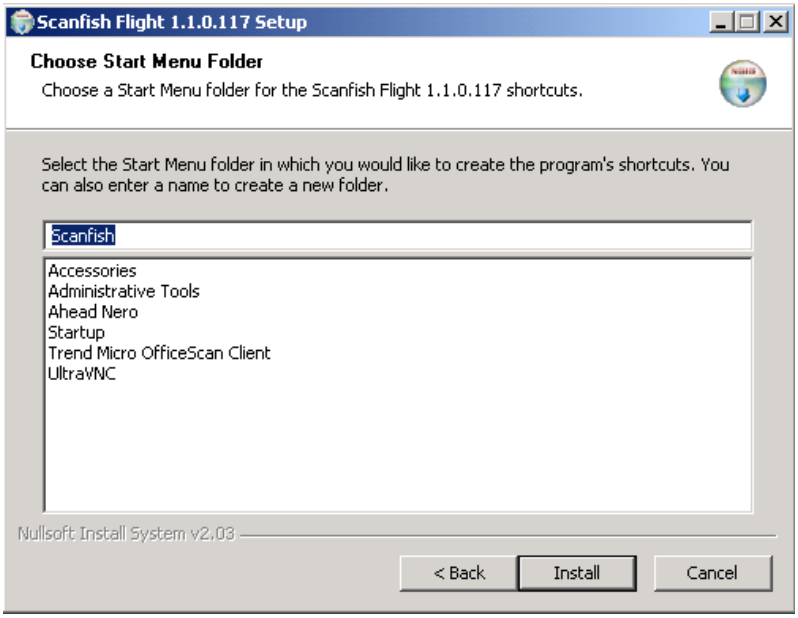
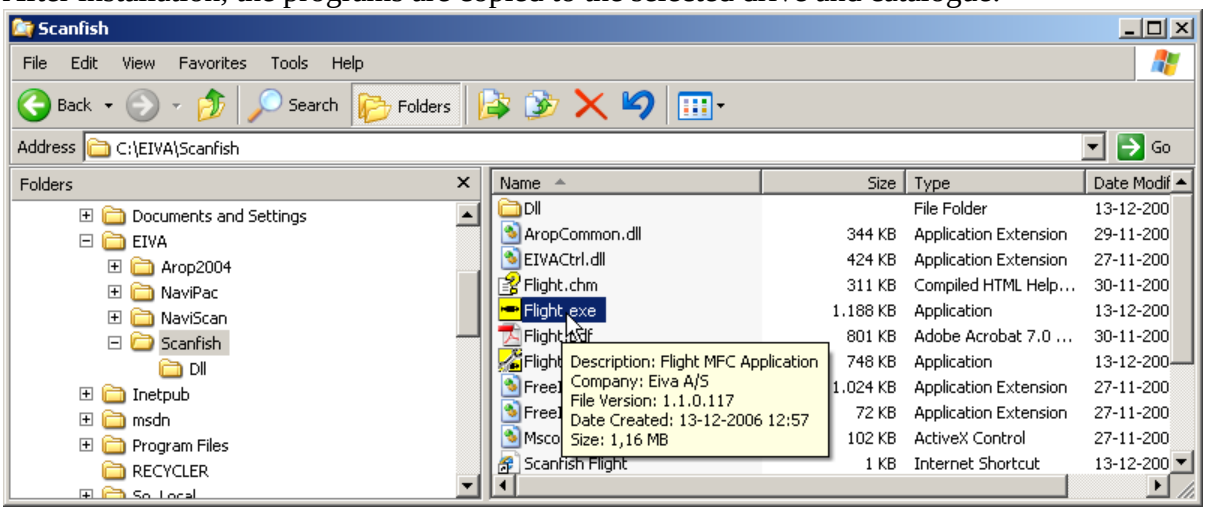

Scanfish Flight 1.1.0.117 Setup
Choose Start Menu Folder
Choose a Start Menu folder for the Scanfish Flight 1.1.0.117 shortcuts.
Select the Start Menu folder in which you would like to create the program's shortcuts. You can also enter a name to create a new folder.
Scanfish
Accessories
Administrative Tools
Ahead Nero
Startup
Trend Micro OfficeScan Client
UltraVNC
Nullsoft Install System v2.03
< Back
Install
Cancel

Define where to include the start short-cut – default is Programs, ScanFish.

After installation, the programs are copied to the selected drive and catalogue:



1.1 Dongle

Beside the program, you must also install support for Wibu-key (the small green dongle placed on the parallel or USB port). This must also be done in demonstration mode, as it requires driver no matter if the dongle is there or not.

Installation is initiated from the main start-up window Wibu-key button.

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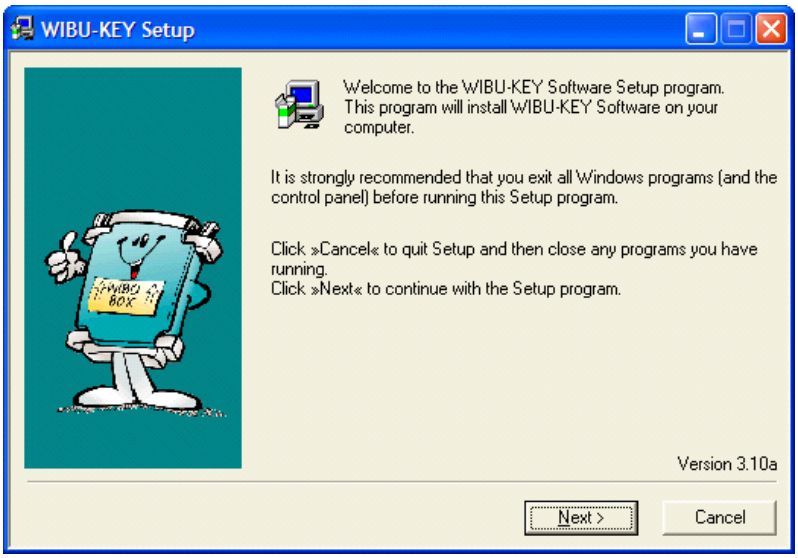
WIBU-KEY Setup
Welcome to the WIBU-KEY Software Setup program.
This program will install WIBU-KEY Software on your computer.
It is strongly recommended that you exit all Windows programs (and the control panel) before running this Setup program.
Click »Cancel« to quit Setup and then close any programs you have running.
Click »Next« to continue with the Setup program.
Version 3.10a
Next >
Cancel

and just follow the instructions.

2 Patches

Very often the CD's also includes a patch – where a patch can be a single file or a minor installation program.

At a later stage, you may add patches from newer CD's or you may pick them up from our download home page: http://download.eiva.dk/downloads/default.asp

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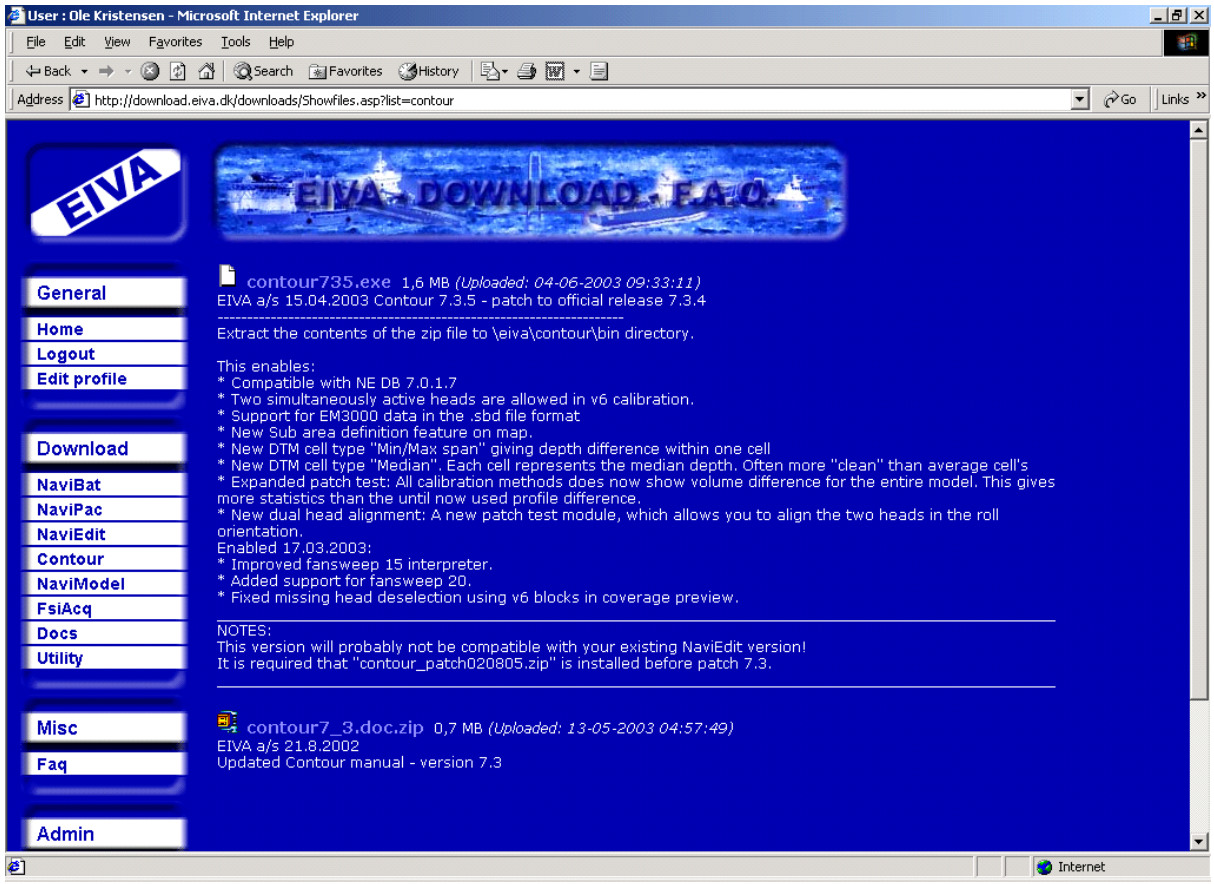
User : Ole Kristensen - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://download.eiva.dk/downloads/Showfiles.asp?list=contour
Go Links
EIVA
EIVA - DOWNLOAD - F.A.Q.
General
Home
Logout
Edit profile
Download
NaviBat
NaviPac
NaviEdit
Contour
NaviModel
FsiAcq
Docs
Utility
Misc
Faq
Admin
contour735.exe 1,6 MB (Uploaded: 04-06-2003 09:33:11)
EIVA a/s 15.04.2003 Contour 7.3.5 - patch to official release 7.3.4
Extract the contents of the zip file to \eiva\contour\bin directory.
This enables:
* Compatible with NE DB 7.0.1.7
* Two simultaneously active heads are allowed in v6 calibration.
* Support for EM3000 data in the .sbd file format
* New Sub area definition feature on map.
* New DTM cell type "Min/Max span" giving depth difference within one cell
* New DTM cell type "Median". Each cell represents the median depth. Often more "clean" than average cell's
* Expanded patch test: All calibration methods does now show volume difference for the entire model. This gives more statistics than the until now used profile difference.
* New dual head alignment: A new patch test module, which allows you to align the two heads in the roll orientation.
Enabled 17.03.2003:
* Improved fansweep 15 interpreter.
* Added support for fansweep 20.
* Fixed missing head deselection using v6 blocks in coverage preview.
NOTES:
This version will probably not be compatible with your existing NaviEdit version!
It is required that "contour_patch020805.zip" is installed before patch 7.3.
contour7_3.doc.zip 0,7 MB (Uploaded: 13-05-2003 04:57:49)
EIVA a/s 21.8.2002
Updated Contour manual - version 7.3
Internet

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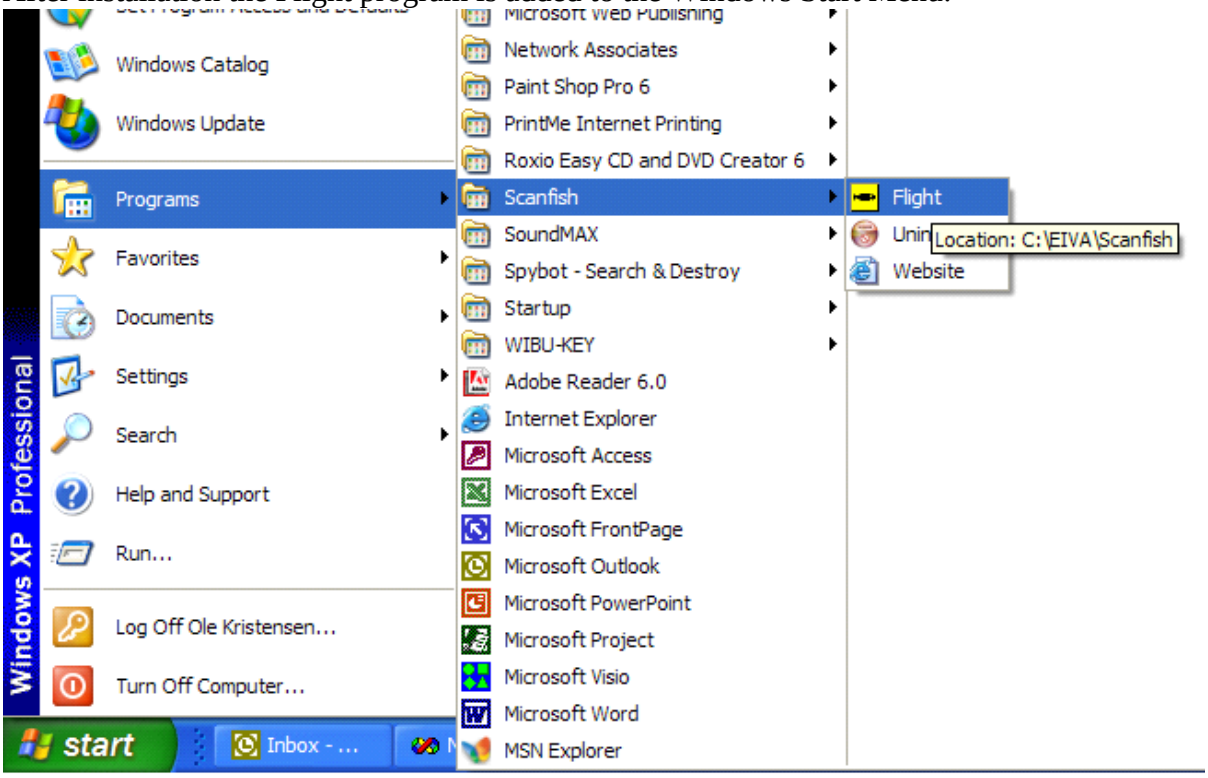
3 Getting started

After installation the Flight program is added to the Windows Start Menu:



Start the Flight program and the following window pop's up:

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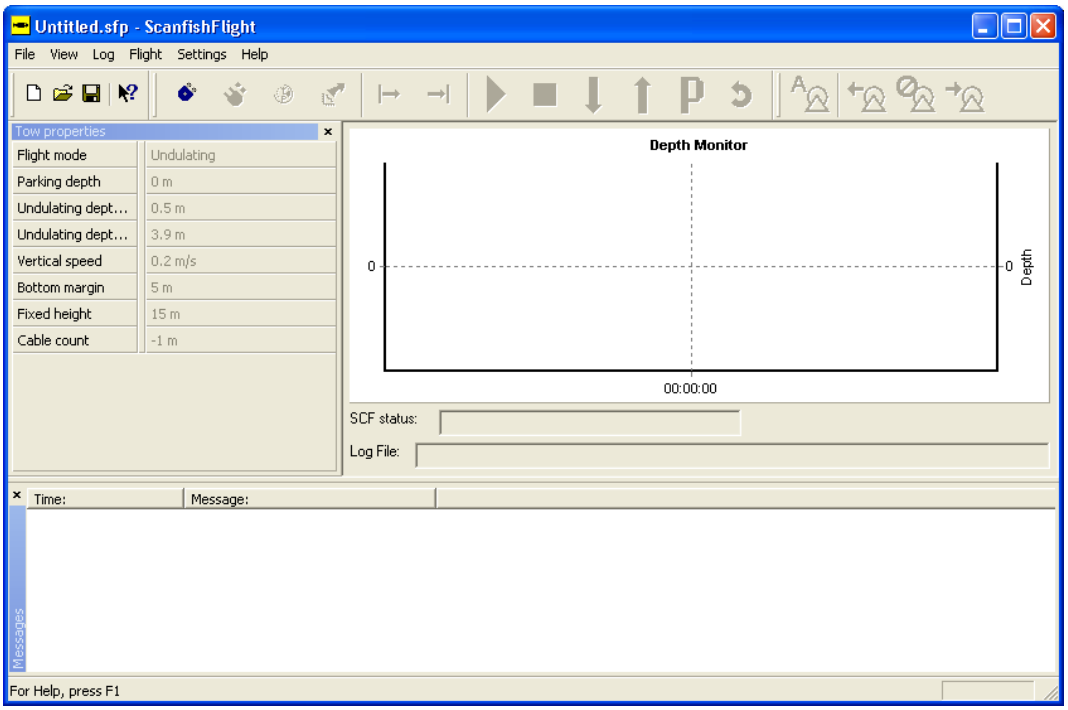
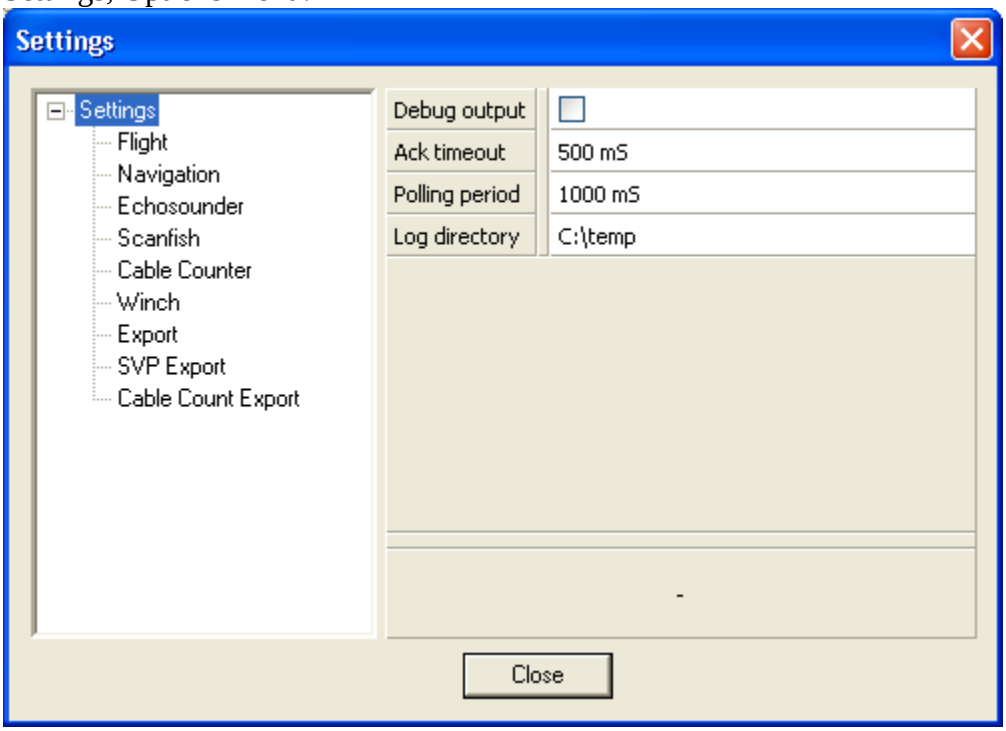


Before initiating a flight you have to set-up communication etc. This is performed via the Settings, Options menu:



Press ScanFish to identify the I/O settings:

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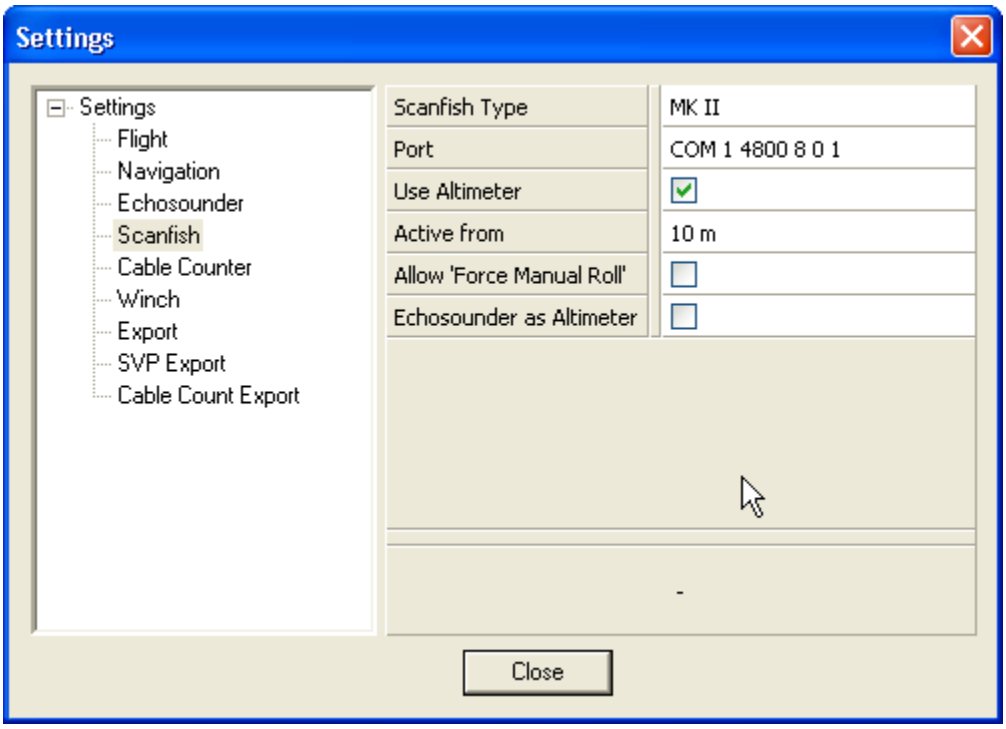
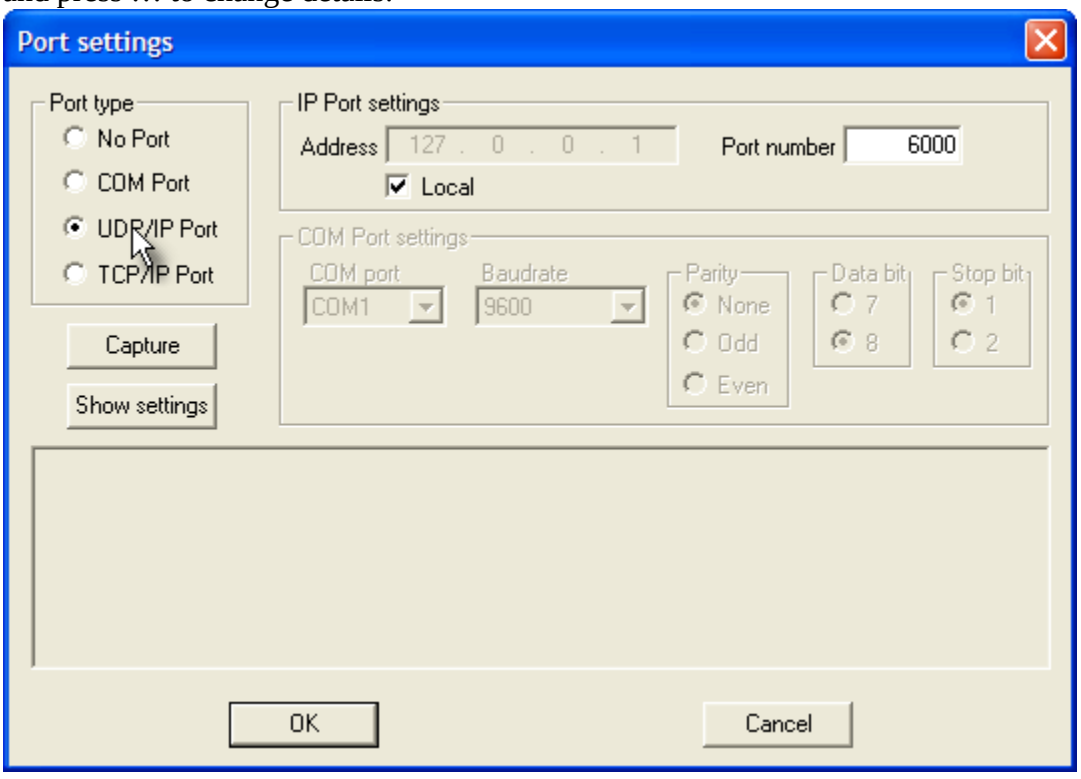


and press … to change details:



Select the Settings panel to identify where data logging must take place:

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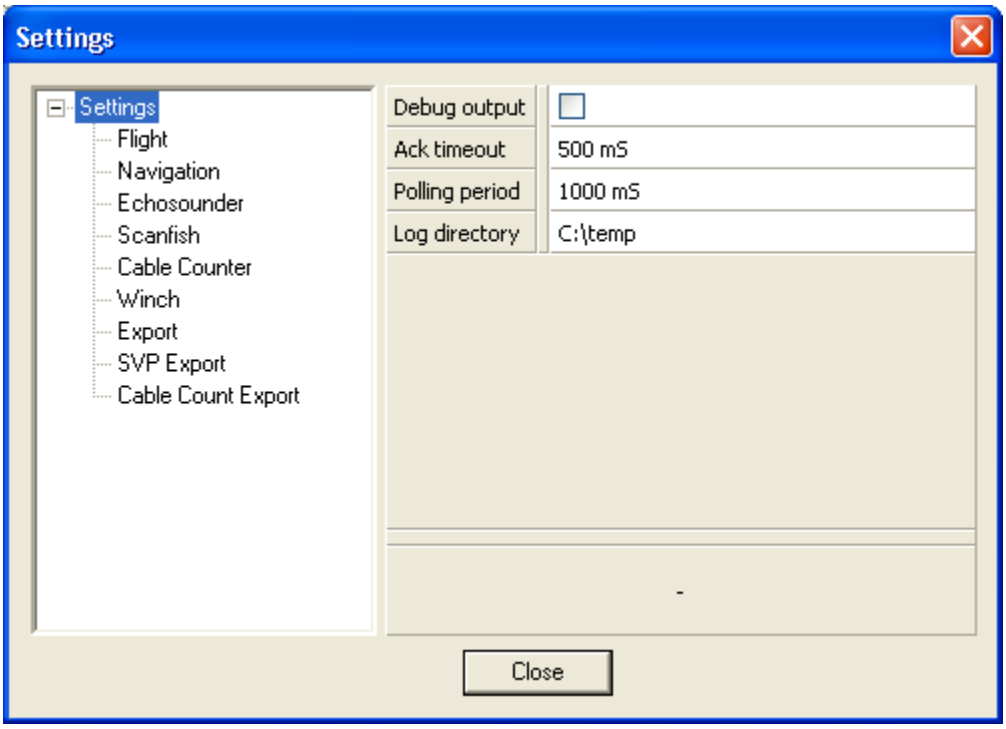
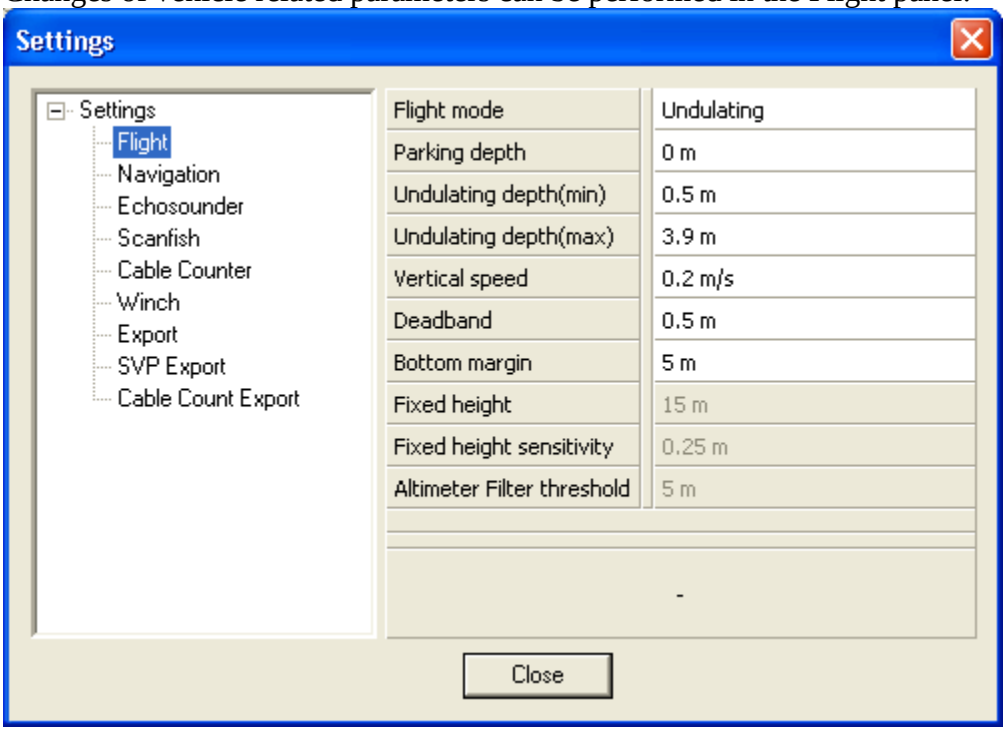


Changes of vehicle related parameters can be performed in the Flight panel:



Enter/select new data in small edit field and press enter.

When all settings are correct, then you must save the settings in a project via the file menu:

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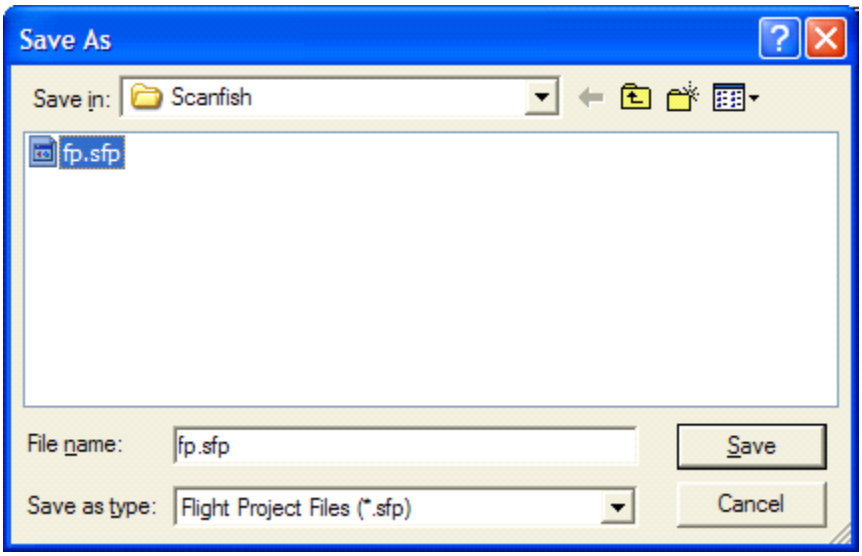
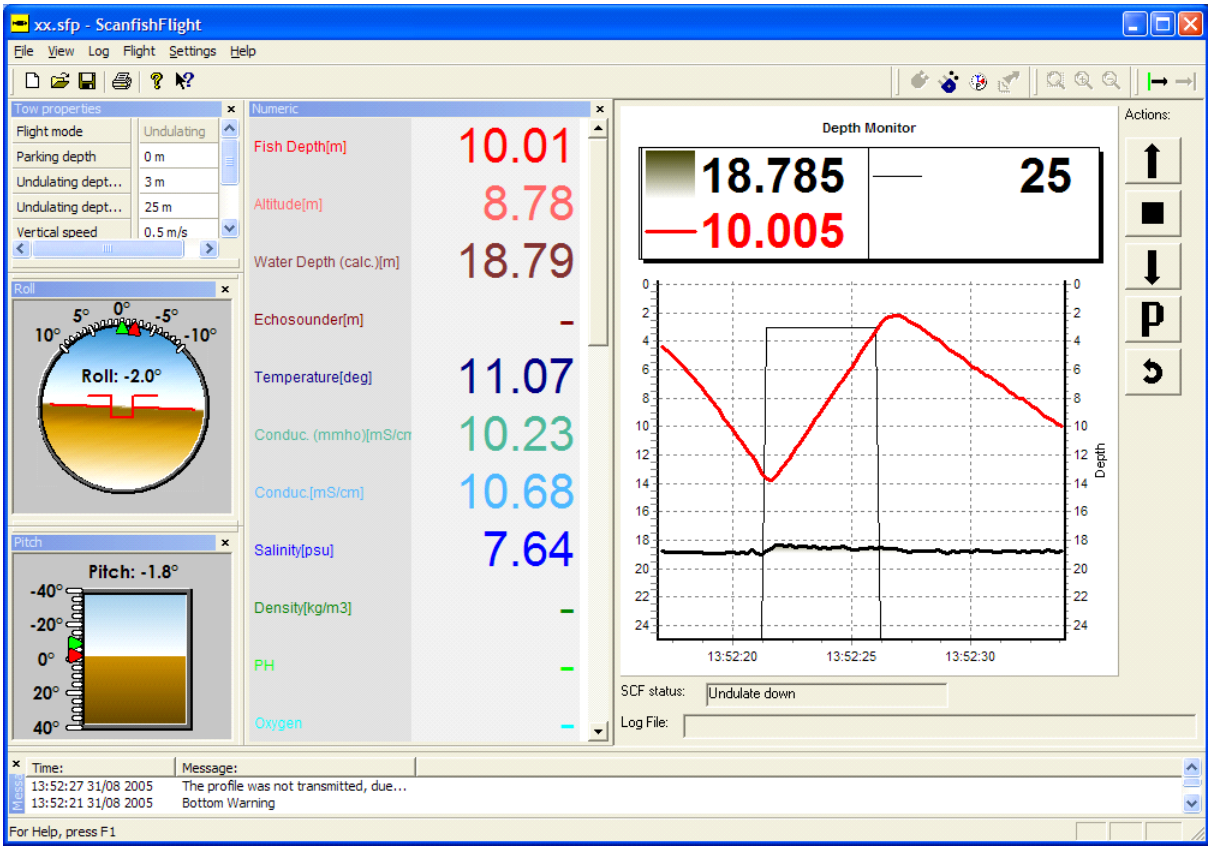


You are now ready to start a flight. This may be done via the File, Connect menu.

3.1 The views



Version 1.0.2 of the fish flight program is delivered with a flexible layout of the display. It consists of a series of parts – the layout and size of these windows can be controlled – and they may be moved outside the main window (eg. handy on a dual screen solution).

- Control tree view:

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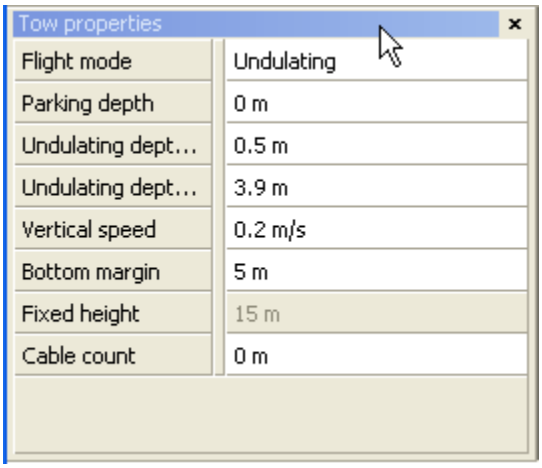
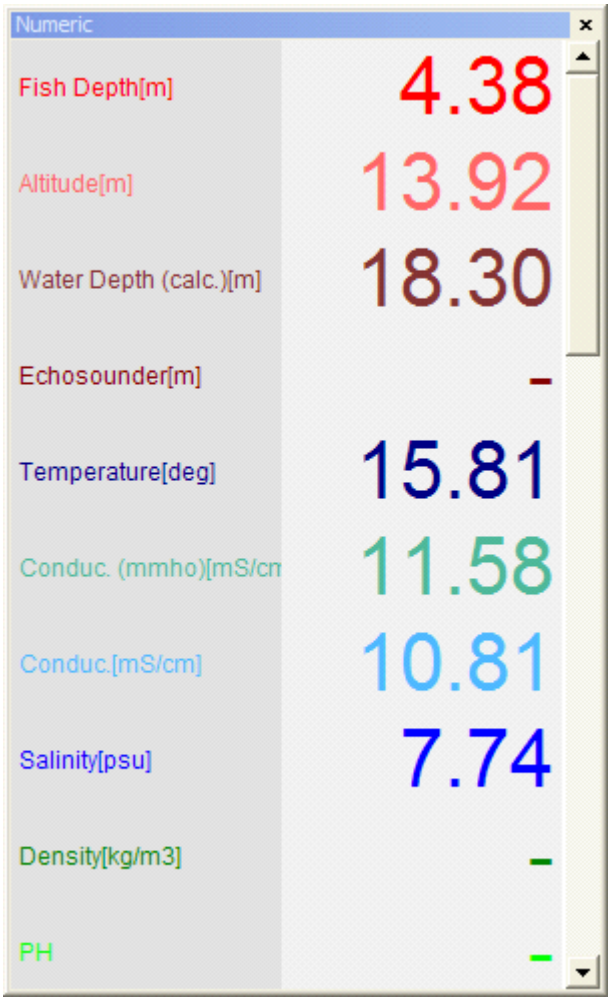


This part of the window shows the current settings of the fish. To change any just select the entry, change the value in the small edit field and press enter. To make changes permanent – remember to save the project

- Data ASCII view:



This part of the window gives a data section, which allows ASCII presentation of all information delivered by the vehicle. Empty fields indicate that the data aren't

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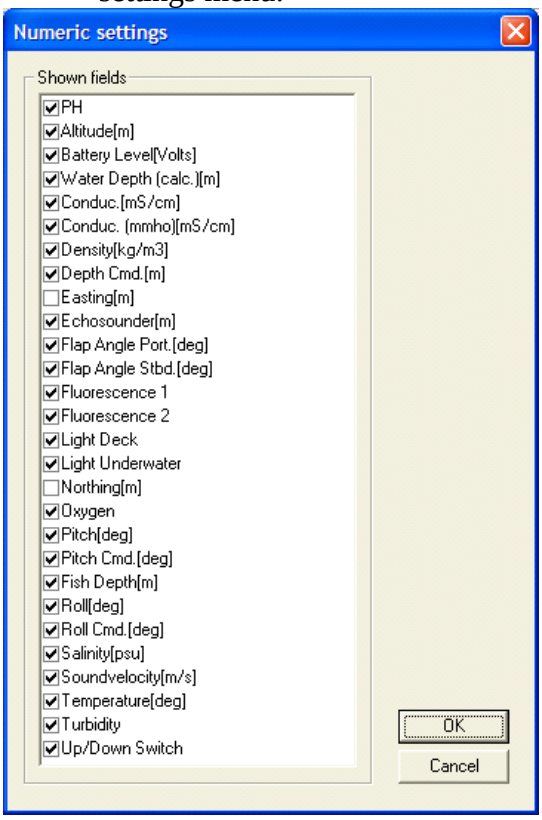
available from this unit. Items may be selected and deselected via right mouse and settings menu:



- Analogue view:

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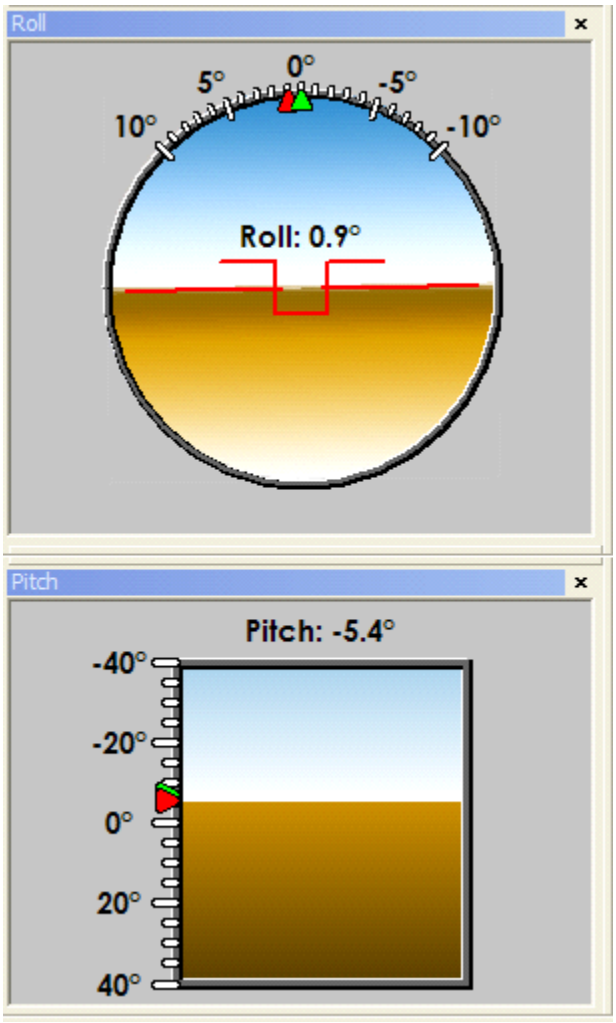

Analogue presentation of fish roll (positive starboard down) and pitch (positive bow up).

- Fish flight graph:

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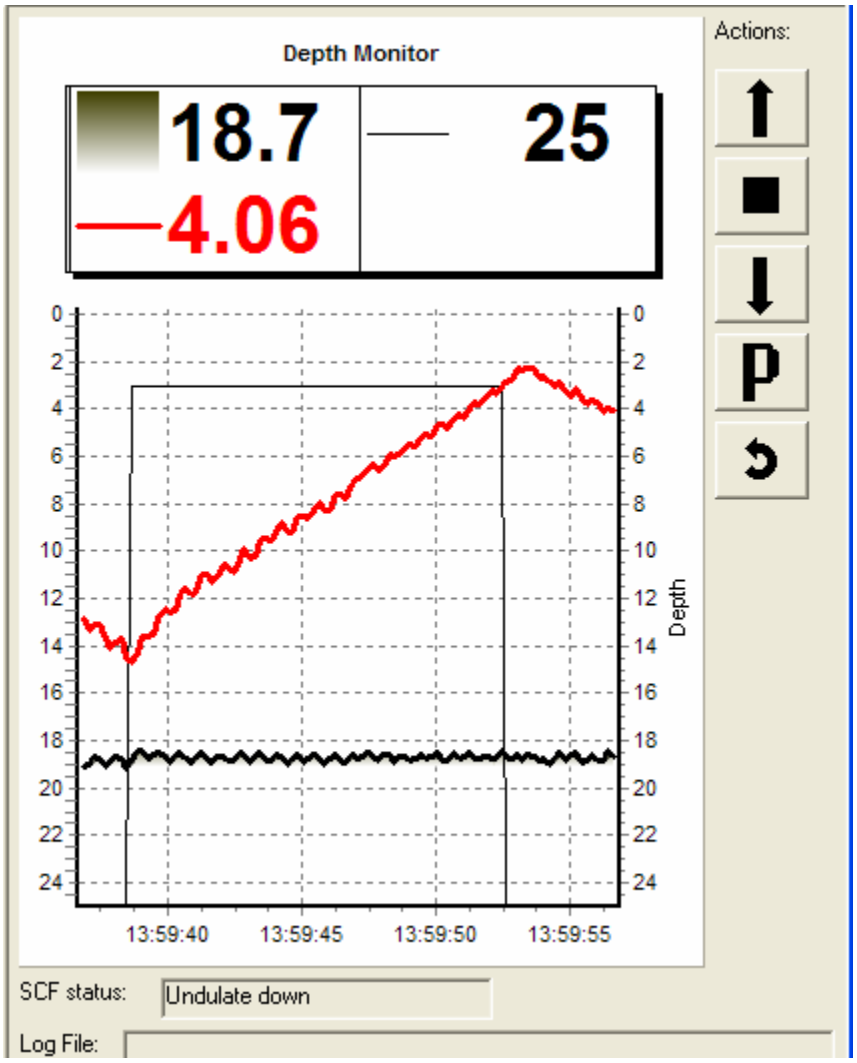

This graph (version 1 prototype) gives a time-series plot of the flight data from the vehicle such as depth and altitude. It does furthermore allow access to general fish control such as up/ddown/parking.

- Data view

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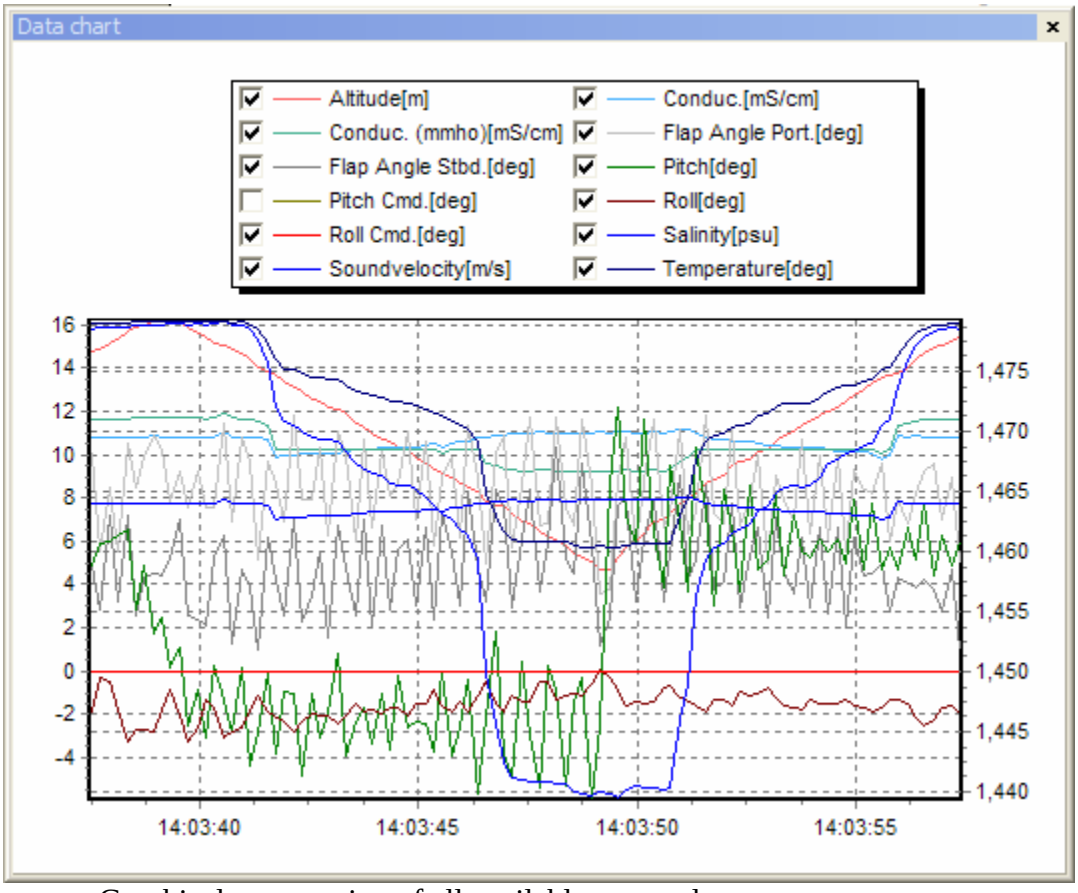
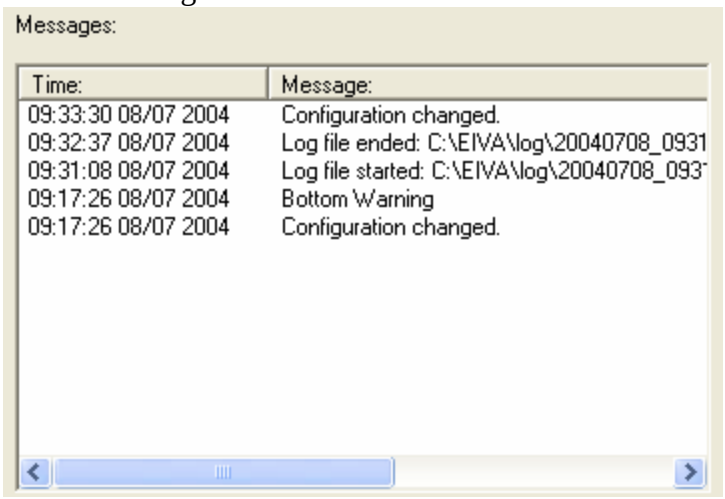


Graphical presentation of all available sensor data.

- Message and alarm table:



Alarm and message log from the system.

3.2 Playback

It is possible to playback recorded data of either data logged with windows version (*.SFL) or exported DOS data (*.SCF).
Activate File. Playback and select the file in action:

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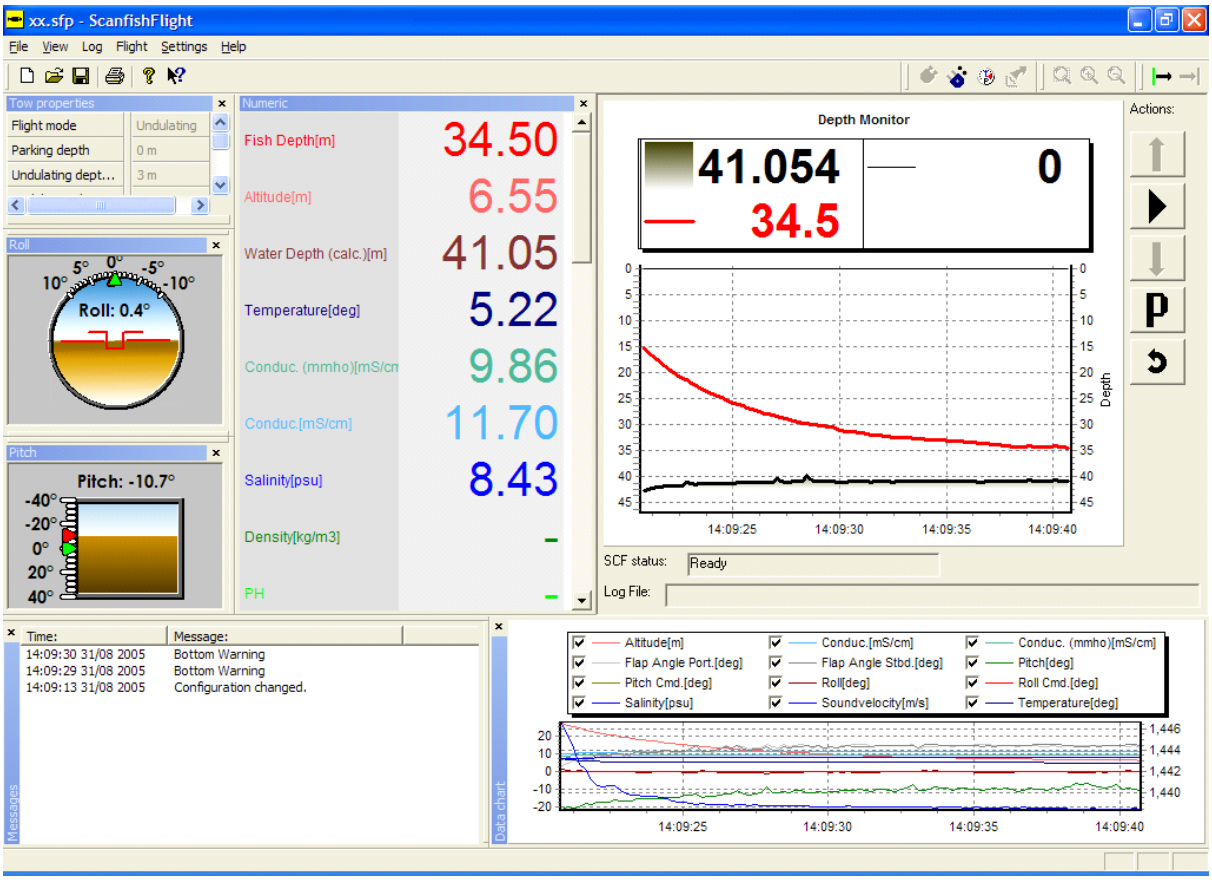

The CD includes two sample files on D:\ScanFish:

- 20031017_120611.sfl
- FOI160

4 Program menus

4.1 File menu

4.1.1 Connect

Connect to the Scanfish and download setup. The correct COM port must have been setup prior to this operation

The following will take place when connecting to the Scanfish:

1. Obtain the id of the fish and the PowCOM unit.
2. Load the channel calibration constants from each unit.
3. (Scanfish II) Initialize the Scanfish controller board.

The Scanfish will initially be in standby mode (depth regulation disabled), ready for deployment.

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4.1.2 Disconnect

Stops communication with the Scanfish. The Scanfish will be left in its current state. It will, however go into parking mode after approximately 9 seconds.

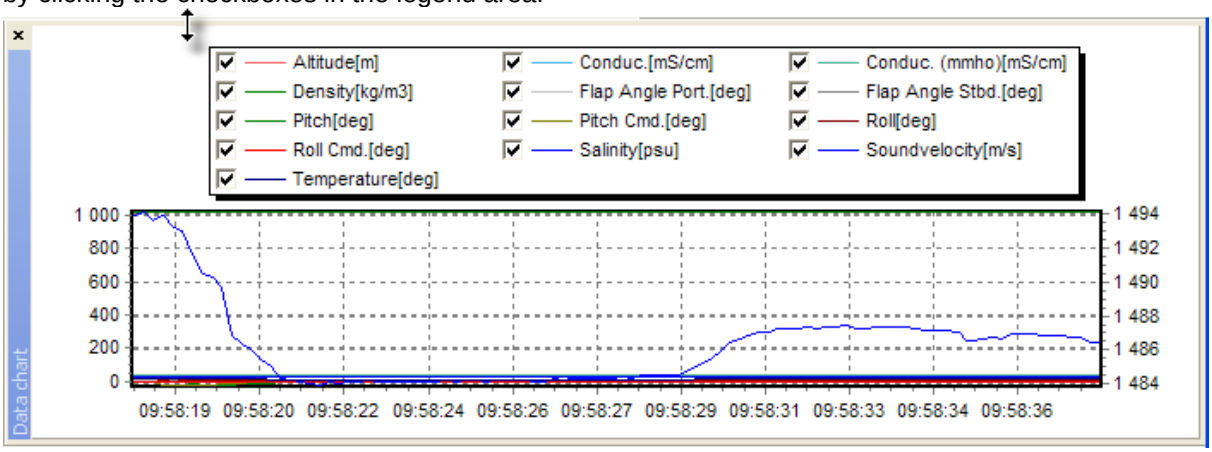
4.1.3 Playback...

Playback a previously logged file (.sfl files). The playback speed will be accelerated

4.2 View menu

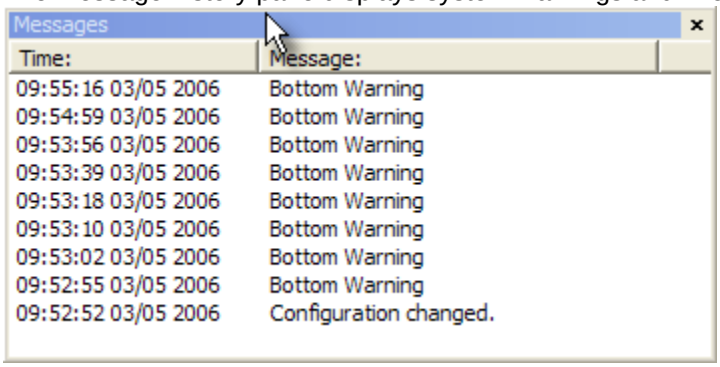
4.2.1 Data Acquisition Chart

This chart display time series of the oceanographic parameters. Each series can be toggled for display by clicking the checkboxes in the legend area.



4.2.2 Messages History

The message history pane displays system warnings and information.


Messages
Time:
Message:
09:55:16 03/05 2006 Bottom Warning
09:54:59 03/05 2006 Bottom Warning
09:53:56 03/05 2006 Bottom Warning
09:53:39 03/05 2006 Bottom Warning
09:53:18 03/05 2006 Bottom Warning
09:53:10 03/05 2006 Bottom Warning
09:53:02 03/05 2006 Bottom Warning
09:52:55 03/05 2006 Bottom Warning
09:52:52 03/05 2006 Configuration changed.

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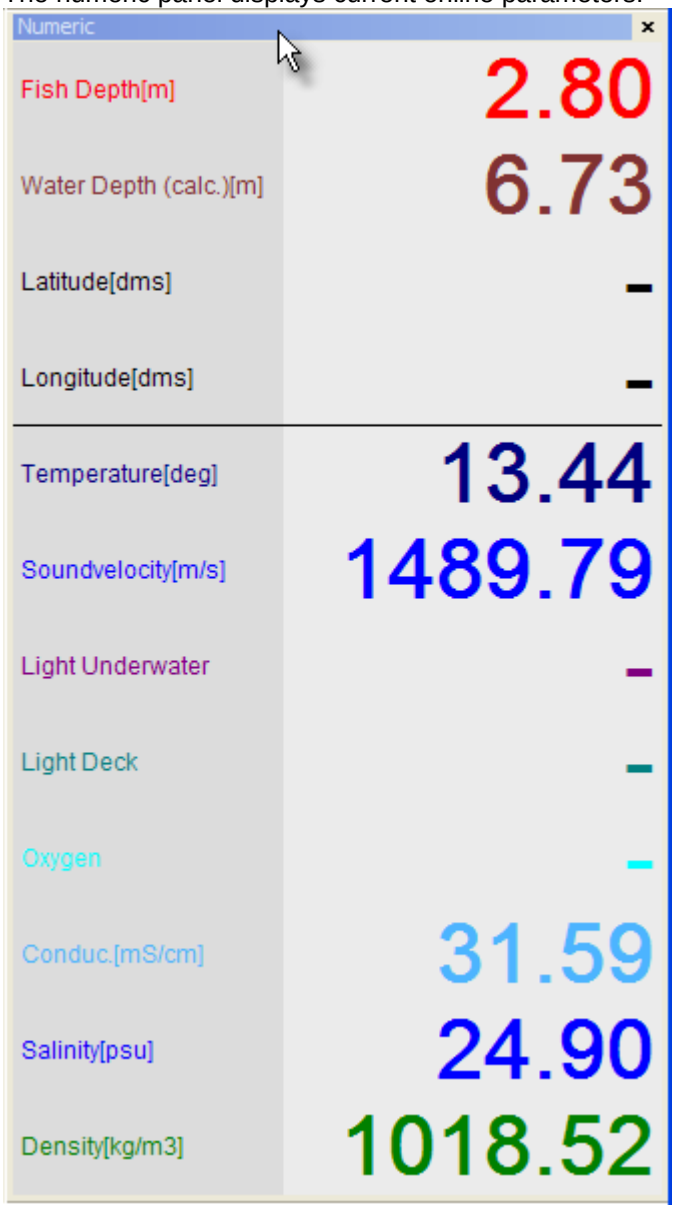
4.2.3 Numeric Panel

The numeric panel displays current online parameters.



Right-click the panel and choose **Settings...** to select the data to display.

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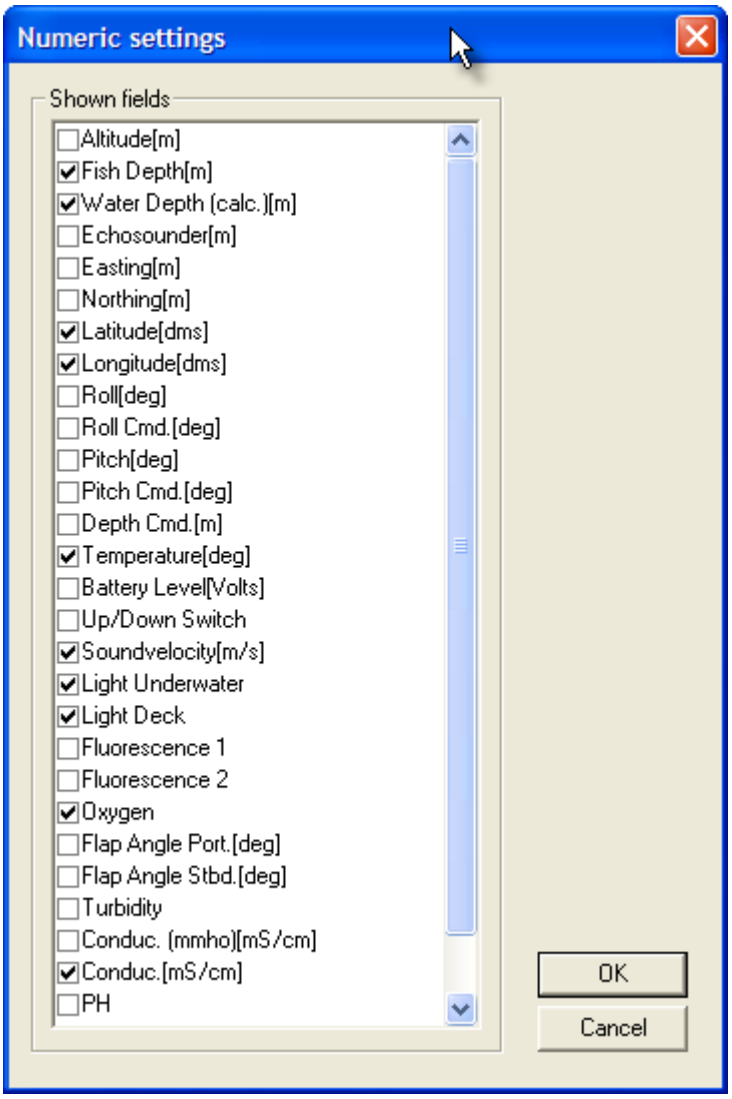

4.2.4 Roll Panel

The roll panel displays the current roll value of the Scanfish (+starboard down).

Red indicator marks the current roll value of the Scanfish. Green indicator marks target roll. If the Scanfish is operating properly the markers should line up most the time.

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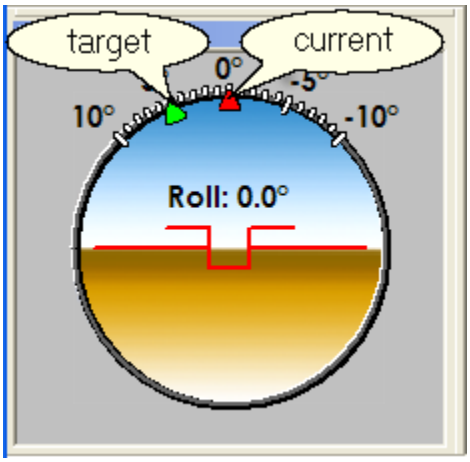
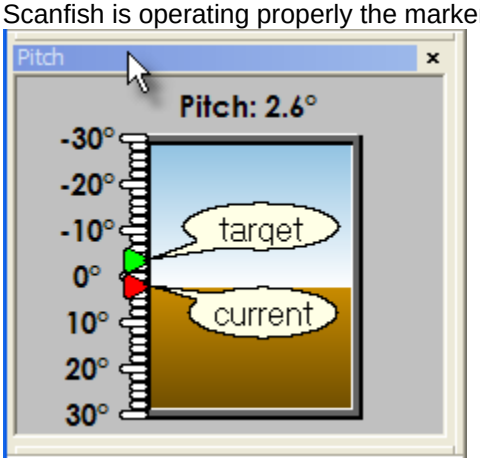


4.2.5 Pitch Panel

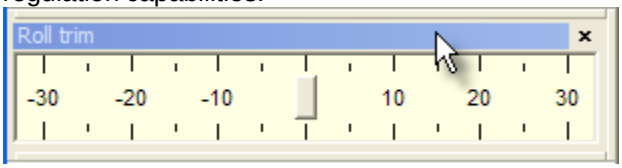
The pitch panel displays the current pitch value of the Scanfish (+bow up).

Red indicator marks the current pitch value of the Scanfish. Green indicator marks target pitch. If the Scanfish is operating properly the markers should line up most the time.



4.2.6 Roll Trim Panel

Use the Roll Trim Panel to adjust the target roll value of the Scanfish. This will to some extent steer the Scabfish to either direction. A positive value guides the Scanfish to starboard and a negative value will guide the Scanfish to port. Please note that the effect will be reduced with shorter cable lengths and that keeping a non-zero roll will decrease the dynamic range of the flaps which diminishes the depth regulation capabilities.



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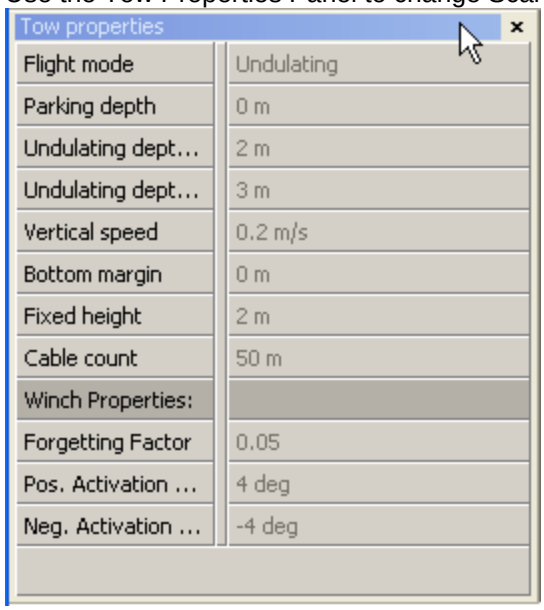
4.2.7 Tow Properties

Use the Tow Properties Panel to change Scanfish operational parameters while towing the Scanfish.



Cable count details:
Please note that the "Cable count" value is how much cable the winch has rolled out.
If communication to the Cable Counter is lost, the value -1 is shown.

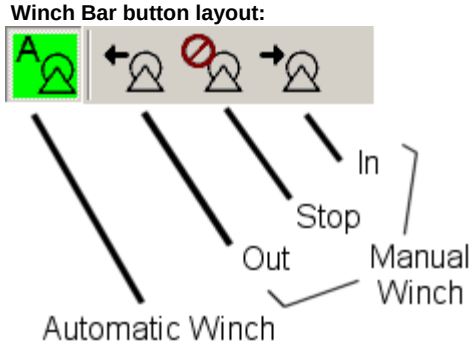
> ***ATTENTION*** **(Manually setting the value of Cable count):**
> Manually changing the value of Cable count in Tow Properties will also change the value of the cable counter hardware (if such a device is connected and active).

Winch Properties details:
The Winch Properties are ignored unless you have selected a winch in "Settings->Options...->Winch" and allowed the winch to help undulate (see Winch)

4.2.8 Winch Bar

The winch bar can be used if a winch has been selected in Settings->Options...->Winch.

Winch Bar button layout:



Automatic Winch:
This button can be used if "Enable undulation support" is marked in Settings->Options...->Winch.

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Activating "Automatic Winch" (button turns green) will make ScanFish Flight use the winch to help undulate during flight if needed.

Manual Winch:
Winch in/out buttons must be held down for the duration where the winch is to pull in or give cable. The "Stop" button will turn yellow when activated.

ATTENTION: **The "Stop" button IS NOT AN EMERGENCY STOP** and is NOT intended to be used as such!

ATTENTION: When controlling the winch using the "manual winch" controls the probe does not react to "Bottom warning" and can thus be forced by the user to touch the ocean floor! The "Min. cable out" and "Max. cable out" settings from Settings->Options...->Winch is still in effect.

4.3 Log menu

4.3.1 Start Log

Starts a new log file (*.sfl file).

4.3.2 Stop Log

Stops logging.

4.4 Flight menu

4.4.1 Do Roll Control

Instruct the Scanfish to perform the 'Roll control maneuver. Use this command the flip the Scanfish over to an upright position if the Scanfish was turned upside down during deployment.

4.4.2 Park

Send the Scanfish to parking depth.

4.4.3 Reset Pressure Cell

Use this command before deployment to accommodate for the change in atmospheric pressure. The depth reading should be 0 at the water surface after applying this command.Do not send this command while the Scanfish is submerged.

4.4.4 Send CTD Profile

Sends the current sound velocity profile out is an output is configured. See Collecting profiles for NaviScan

4.4.5 Start Flight

Sends the Scanfish into depth-regulation mode.

4.4.6 Stop Flight

Stops depth regulation. This will not park the Scanfish.

4.4.7 Undulate Down

Shifts the undulation direction to downwards. Only valid while in undulation mode.

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4.4.8 Undulate Up

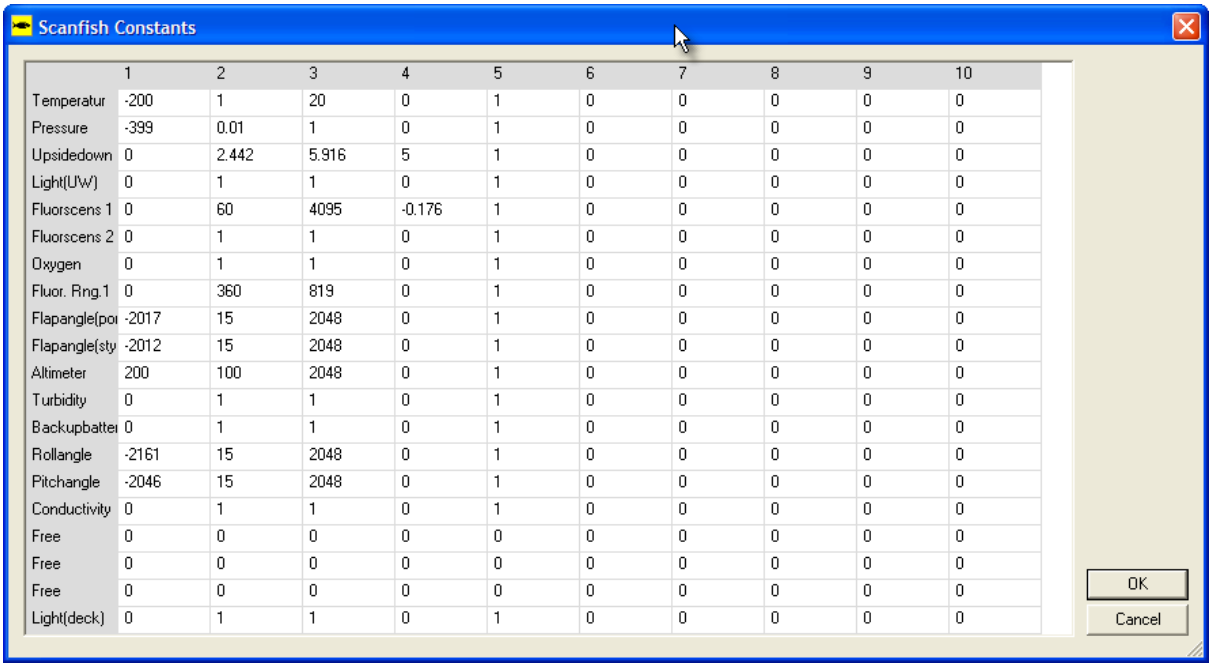
Shifts the undulation direction to upwards. Only valid while in undulation mode.

4.5 Settings menu

4.5.1 Edit Constants

Change the constants used for calculating engineering values from AD converter counts. The Scanfish needs to be connected for this operation.

CAUTION. changes made to these values are written to the Scanfish and might corrupt the calibration values.



	1	2	3	4	5	6	7	8	9	10
Temperatur	-200	1	20	0	1	0	0	0	0	0
Pressure	-399	0.01	1	0	1	0	0	0	0	0
Upsidedown	0	2.442	5.916	5	1	0	0	0	0	0
Light(UW)	0	1	1	0	1	0	0	0	0	0
Fluorscens 1	0	60	4095	-0.176	1	0	0	0	0	0
Fluorscens 2	0	1	1	0	1	0	0	0	0	0
Oxygen	0	1	1	0	1	0	0	0	0	0
Fluor. Rng.1	0	360	819	0	1	0	0	0	0	0
Flapangle(poi	-2017	15	2048	0	1	0	0	0	0	0
Flapangle(sty	-2012	15	2048	0	1	0	0	0	0	0
Altimeter	200	100	2048	0	1	0	0	0	0	0
Turbidity	0	1	1	0	1	0	0	0	0	0
Backupbatter	0	1	1	0	1	0	0	0	0	0
Rollangle	-2161	15	2048	0	1	0	0	0	0	0
Pitchangle	-2046	15	2048	0	1	0	0	0	0	0
Conductivity	0	1	1	0	1	0	0	0	0	0
Free	0	0	0	0	0	0	0	0	0	0
Free	0	0	0	0	0	0	0	0	0	0
Free	0	0	0	0	0	0	0	0	0	0
Light(deck)	0	1	1	0	1	0	0	0	0	0

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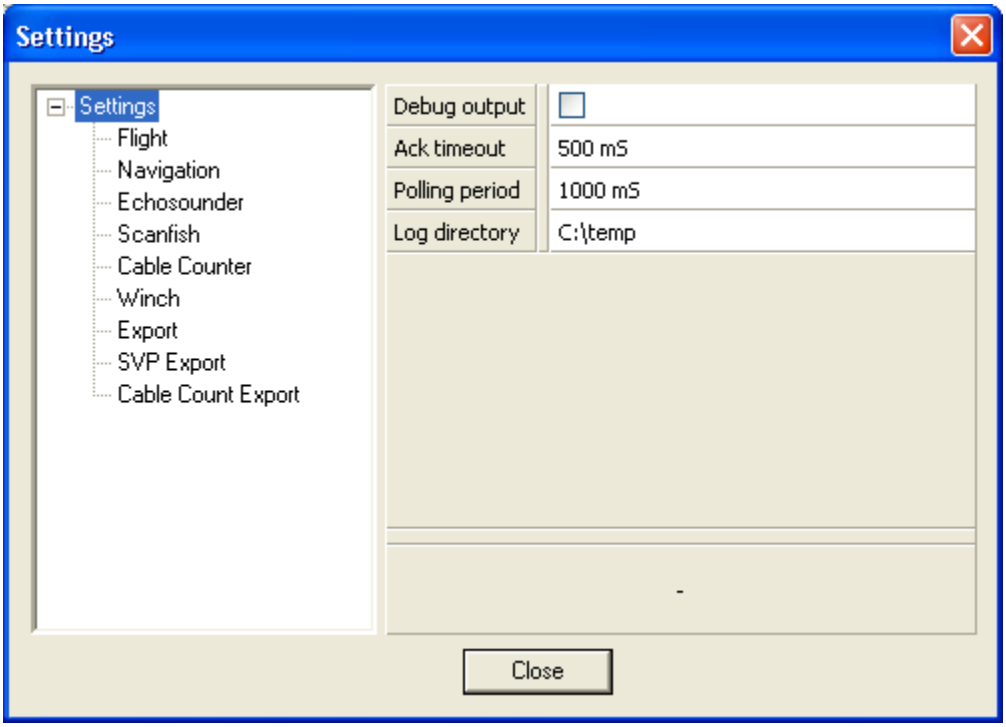
4.5.2 Options



Debug output	Dumps debug information in windows temp dir
Ack timeout	Time to wait for acknowledge when communication with Scanfish. Increase this value when operating at low baud rates
Polling period	How often to poll the Scanfish for data.
Log directory	Location of logged files

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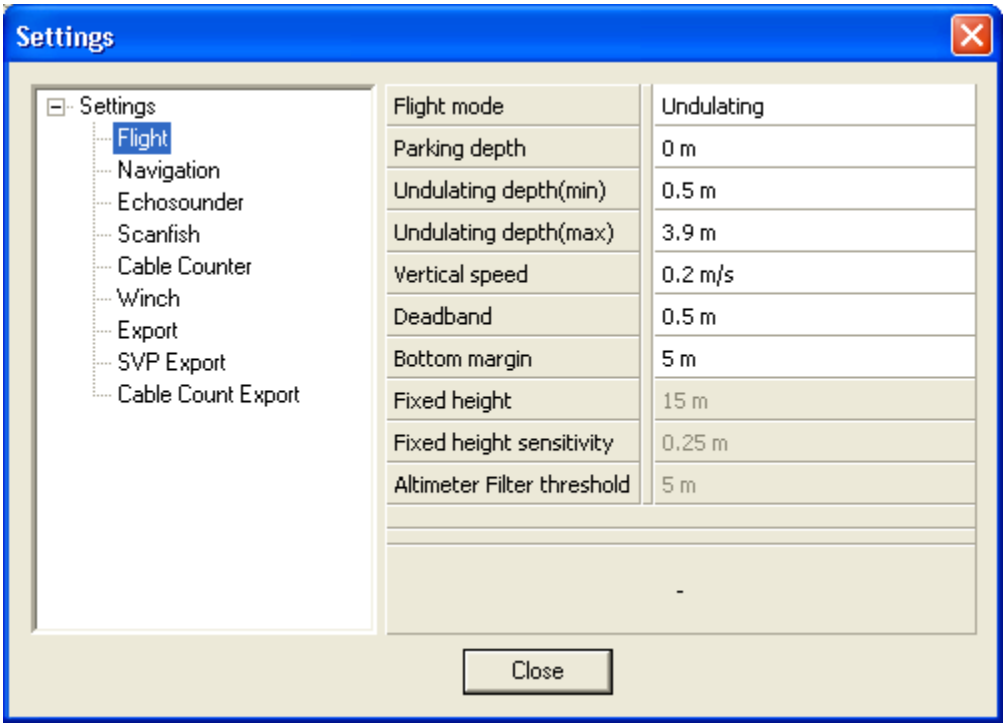
4.5.2.1 Flight



Flight mode	Undulating, Fixed height, Fixed depth
Parking depth	Can be changed during flight
Undulating depth (min)	Can be changed during flight
Undulating depth (max)	Can be changed during flight
Vertical speed	Controls the rate of depth change.
Deadband	Stop the use of winch when the depth is within this range of the target depth. (Scanfish MK1).
Bottom margin	Minimum allowed distance to the seabed. Values lower than 1 m will be overridden by the Scanfish MK2 controller.
Fixed height	Preset for fixed height flight. Can be changed during flight
Fixed height sensitivity	Determines how often to regulate the target the depth of the Scanfish in 'fixed height' mode. Lower the value to regulate more often.
Altimeter filter threshold	Discard altimeter values outside this window when determining the depth approximation for 'fixed height' mode

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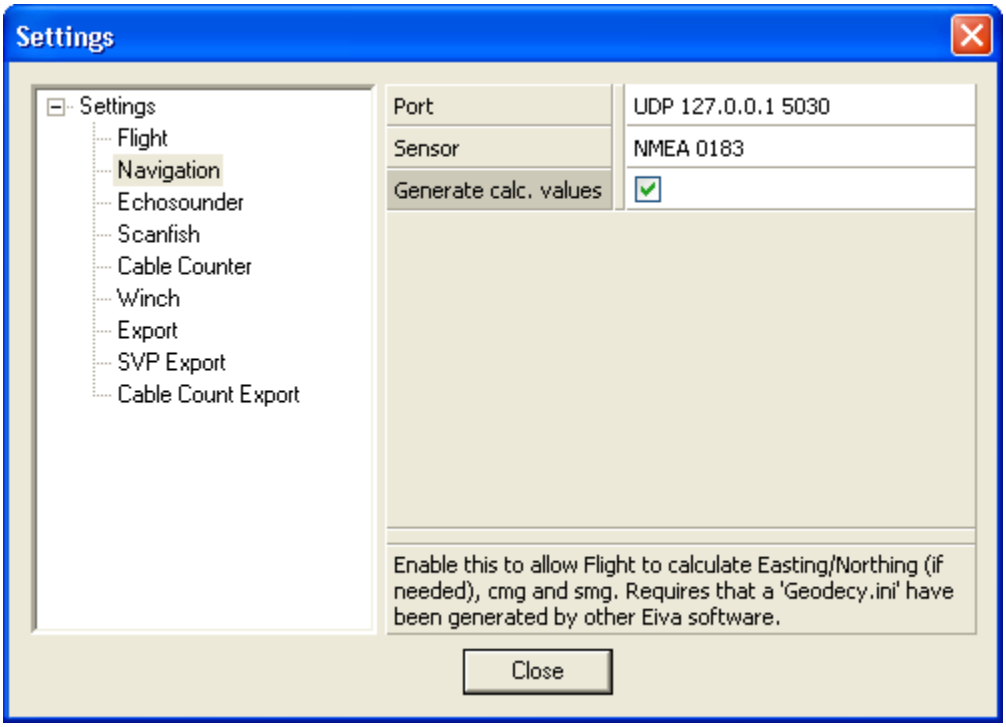
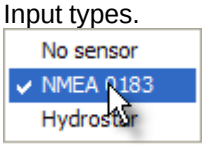
4.5.2.2 Navigation



Port	Navigation input port. See Port Settings
Sensor	Input types. 
Generate calc. values	When enabled this allows Scanfish Flight to calculate "Easting/Northing", "Course Made Good" (CMG) and "Speed Made Good" (SMG) based on the Geodecy.ini file common for all EIVA software installed on the machine. If "Easting/Northing" is received from from an external source those values will be used instead of the calculated ones. Scanfish Flight cannot modify "Geodecy.ini" itself and is thus dependant on other EIVA software to do so.

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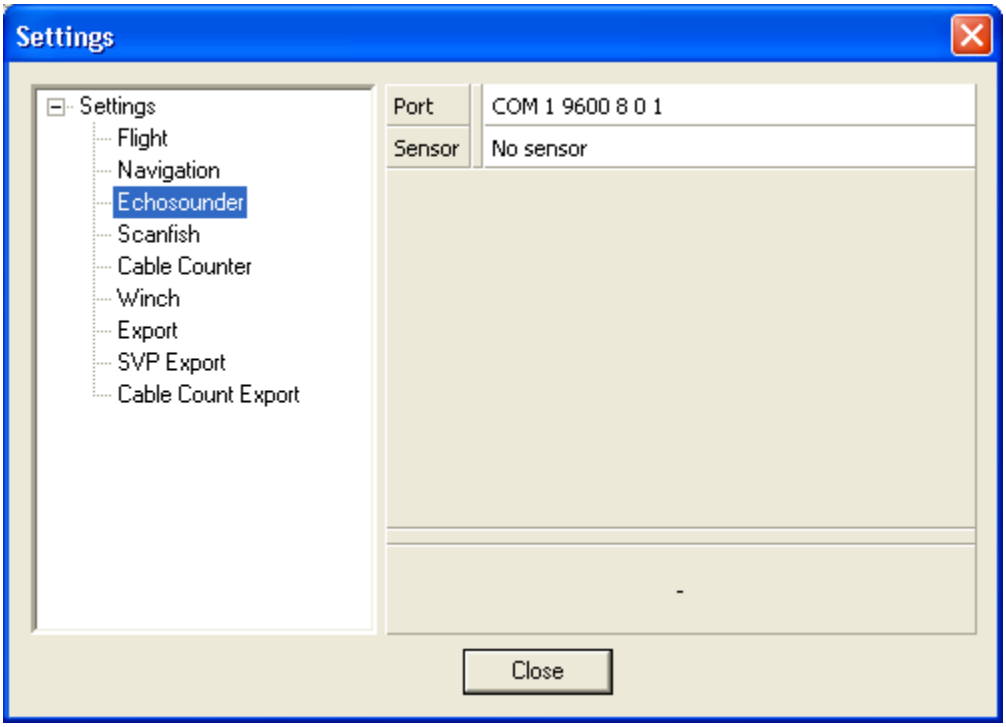
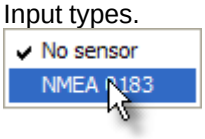
4.5.2.3 Echosounder



Port — Echosounder input port. See Port Settings

Sensor — Input types.



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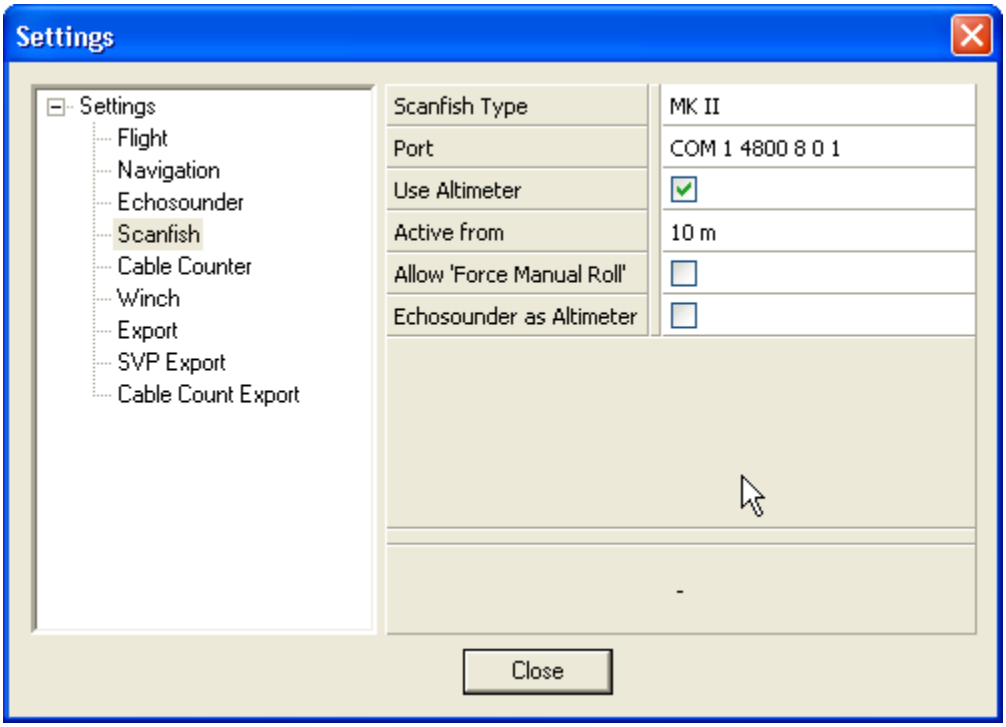
4.5.2.4 Scanfish



Scanfish Type	MK I or MK II
Port	Scanfish input port. See Port Settings
Use Altimeter	Enable use of altimeter for bottom avoidance.
Active From	From which depth to use altimeter.
Allow 'Force Manual Roll'	See "Force Manual Roll" under "Special Features"
Echo sounder as Altimeter	See "Ship E/S as Altimeter" under "Special Features"

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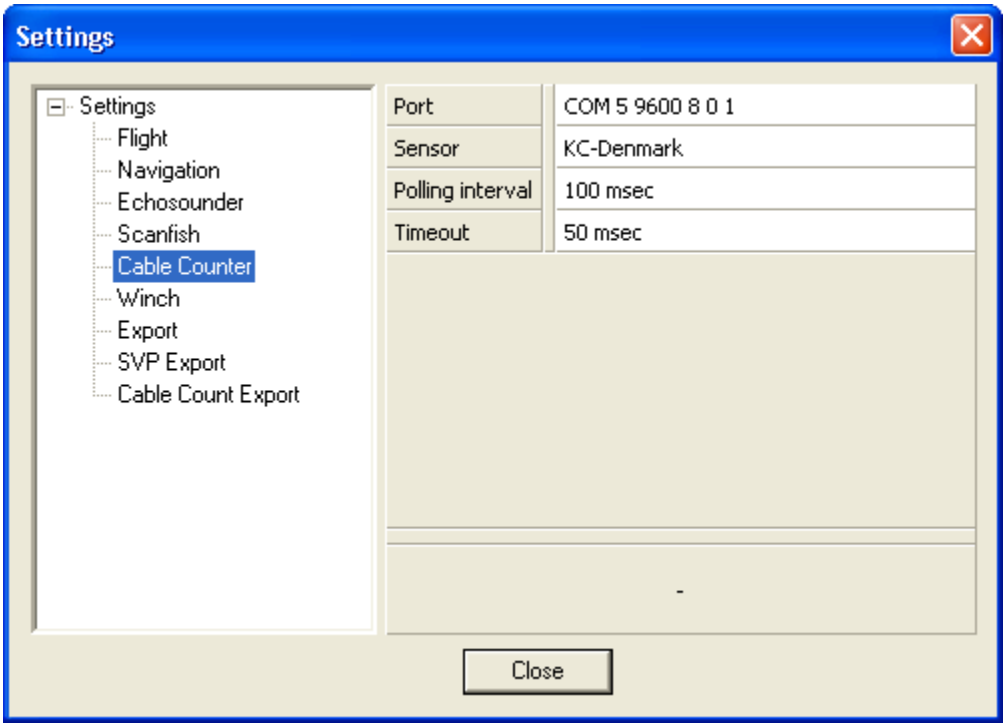
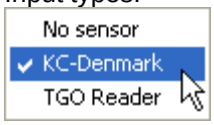
4.5.2.5 Cable Counter



Port — Cable Counter input port. See Port Settings

Sensor — Input types.



Polling interval — How often to poll the Cable Counter for data.

Timeout — Time to wait for acknowledge when communication with Cable Counter or its integrated devices. Increase this value when operating at low baud rates.

Input Types:

- KC-Denmark Cable Counter with option for build in winch-control. Connected through a serial port. (communicates using Modbus protocol)
- TGO Reader ASCII string input received over UDP from NaviPacs "TGO Reader" module (format: "L=<space><value><space>")

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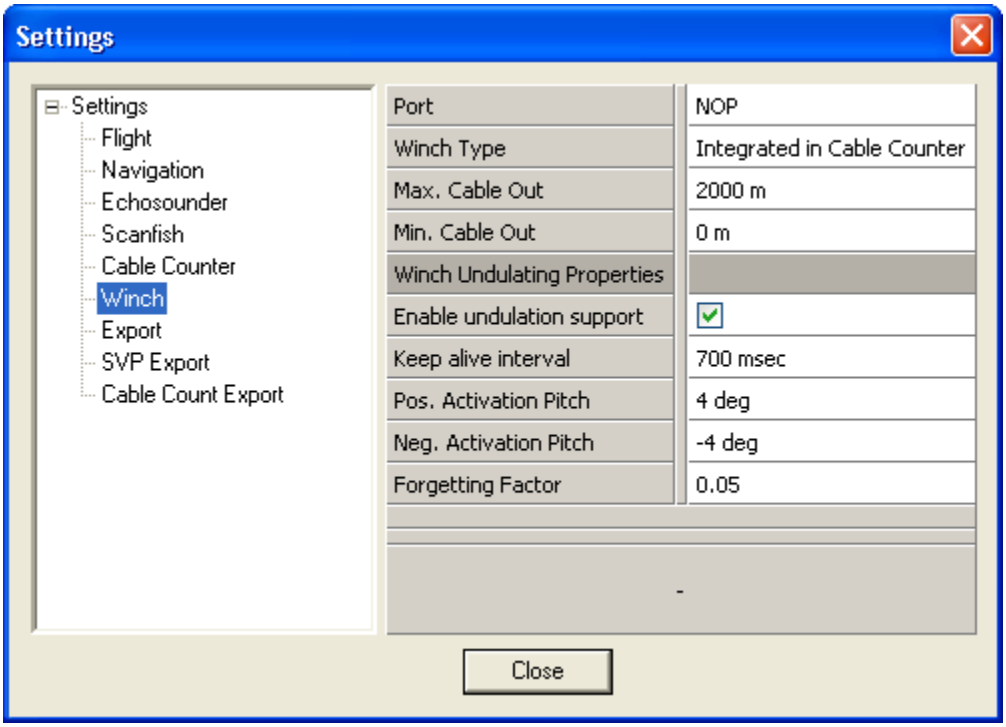
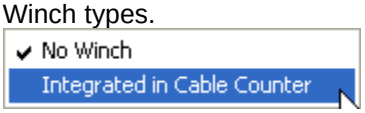
4.5.2.6 Winch



Port	Winch input port. See Port Settings. **Attention**: the selected port is only used if a winch is selected that is NOT integrated with one of the other peripherals (See "Winch Type" below).
Winch Type	Winch types. 
Max. Cable Out	How much wire the ScanFish software is allowed to give the Scanfish probe. (Should be less than the amount of cable on the connected winch.)
Min Cable Out	What is the minimum amount of cable that must be given to the Scanfish probe. (Used to avoid that the probe is pulled too close to the ship.)
Enable undulation support	If checked and supported by the probe, the winch will be used to help undulating during flight. Enabling this feature will make it possible to utilize a larger difference between *Undulating Depth(min)* and *Undulating Depth(max)* (see Flight). Note: At the time of writing only Scanfish MK II can use this feature.
Keep alive interval	*(Only used when "undulation support" is enabled)* For safety reasons, most winches require periodically re-transmission of "Wire out/Wire in" commands. The "Keep alive interval" should be set according to how often your winch requires those re-transmissions. *Note:* For winch-controllers integrated with other devices it is a good idea to use a significantly lower interval then required, for instance 700 msec is a good value if the winch-controller requires refreshes within 1000 msec.

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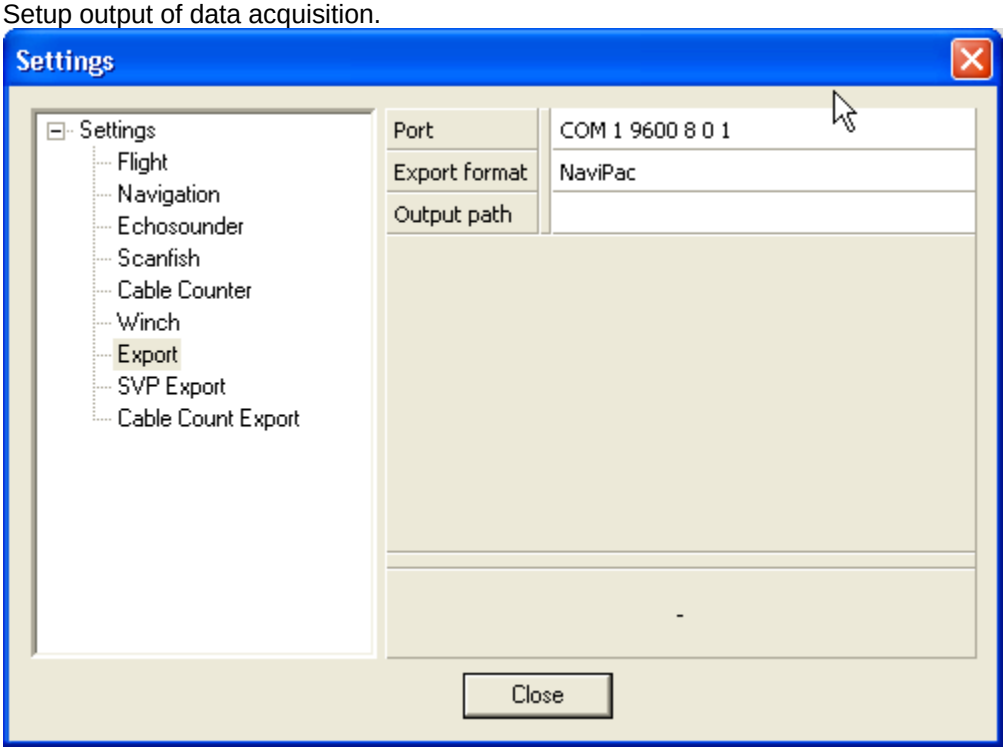
Pos. Activation Pitch	*(Only used when "undulation support" is enabled)* The winch will pull in cable in an attempt to help the probe rise in the water when all the following is true: • Pitch Cmd is positive, • Pitch Cmd is greater than the actual pitch of the ScanFish probe • Difference between Pitch Cmd and the actual pitch of the ScanFish probe is greater than this value (Pos. Activation Pitch)
Neg. Activation Pitch	*(Only used when "undulating support" is enabled)* The winch will give more cable, in an attempt to help the probe go deeper down when all the following is true: • Pitch Cmd is negative • Pitch Cmd is more negative than the actual pitch of the ScanFish probe • Difference between Pitch Cmd and the actual pitch of the ScanFish probe is more negative than this value (Neg. Activation Pitch)
Forgetting Factor	*(Only used when "undulation support" is enabled)* This setting dictates how fast the winch undulation support functionality reacts on pitch changes: • A higher value makes the winch undulation support react faster to changes in the pitch, but also makes the system more vulnerable to outside interference. • A lower value makes the winch undulation support react slower to changes in the pitch, but makes the system less vulnerable to outside interference. Value range: 0.01 through 0.99, recommended value: 0.05

4.5.2.7 Export

Setup output of data acquisition.



Port Output port. See Port Settings

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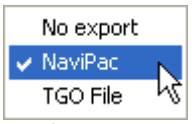
Export Format



NaviPac Format Description

4.5.2.7.1 NaviPac Format Description

Navipac Format description:

Field	Content
1	dd-mm-yy
2	HH:MM:SS
3	altimeter
4	pressure
5	bottomcalc
6	echosounder
7	easting
8	northing
9	rollangle
10	rollcmd
11	pitchangle
12	pitchcmd
13	temperature
14	backupbattery
15	upsidedown
16	soundvelocity
17	lightunderwater
18	lightdeck
19	fluorescence1
20	fluorescence2
21	oxygen
22	flapangleport
23	flapanglestarboard
24	turbidity
25	conductivity_mmho
26	conductivity
27	PH
28	salinity
29	density

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4.5.2.7.2 TGO File Description

The following values are written to the file specified by "Output Path" in Export Settings.
The interval with which the file is overwritten is defined by "Polling Period" in Settings

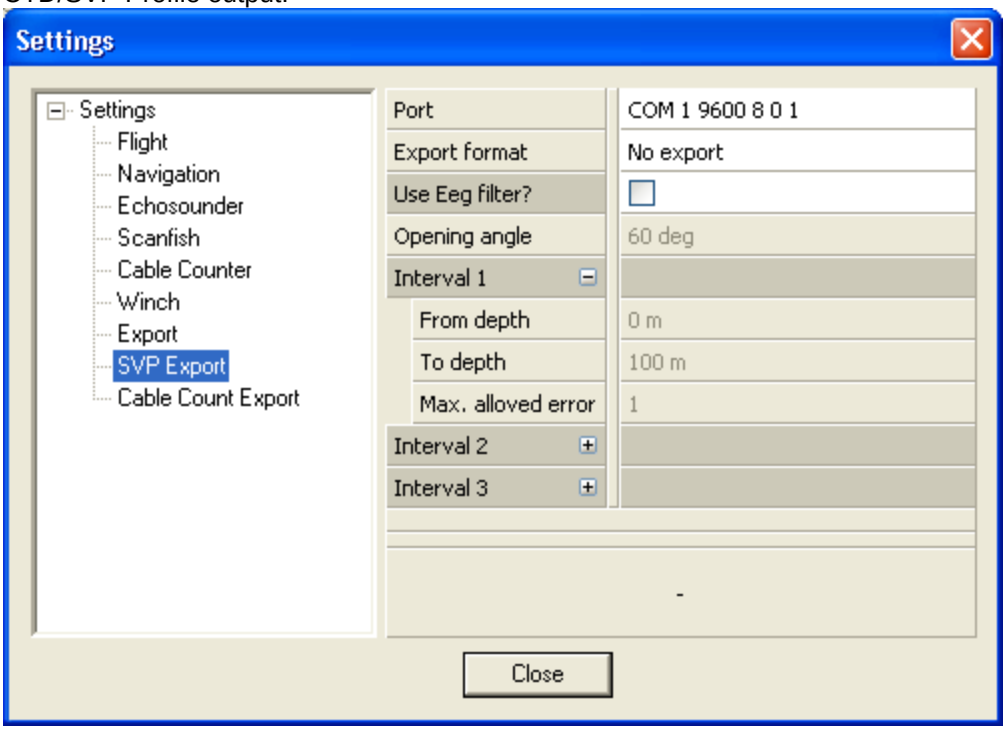
Format:
<Name><tab><value>[<space><unit>]<CR><NL>

Pitch <floating point value> °
Roll <floating point value> °
Altimeter <floating point value> m
CableCount <floating point value> m
MinDepth <floating point value> m
MaxDepth <floating point value> m
FlightMode <Undulating, Fixed Depth, Fixed Height>
Going <Up,Down, Horizontal>

Example of file content:
Pitch -3.130452 °
Roll 1.476239 °
Altimeter 99.304800 m
CableCount 20.000000 m
MinDepth 4.000000 m
MaxDepth 10.000000 m
FlightMode Undulating
Going Up

4.5.2.8 SVP Export

CTD/SVP Profile output.



Port Output port. See Port_Settings

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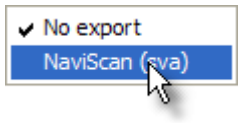
Export Format

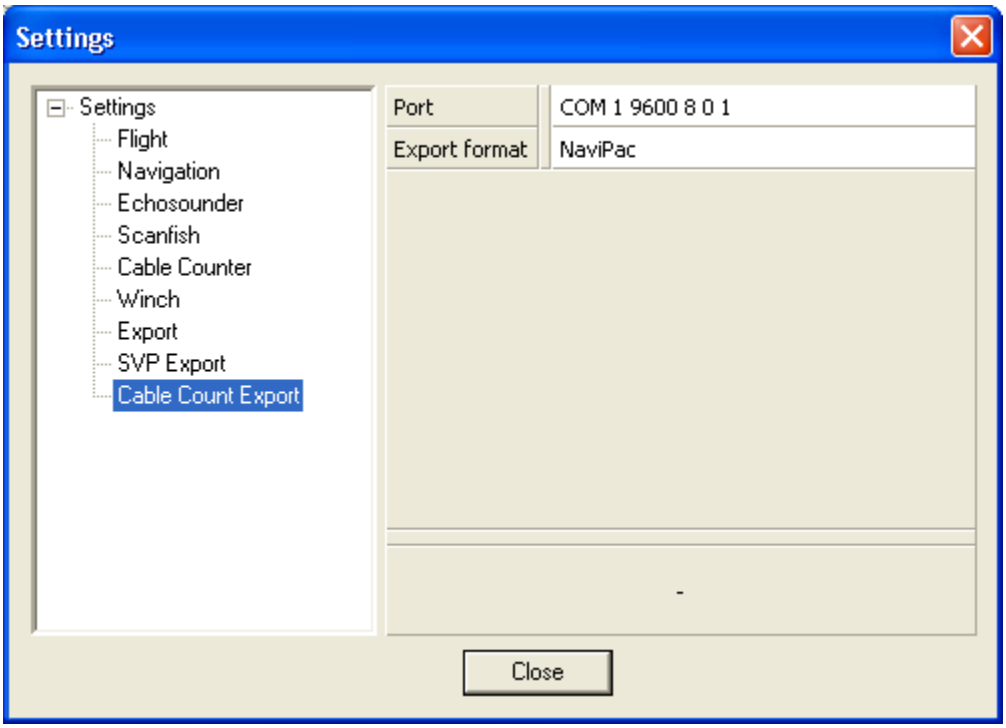


Use Eeg filter — Special filter option. Enable this to reduce the amount of profiles sent to the multibeam system.

Opening angle — Angle to test for error. This should match the opening angle in us for the multibeam system.

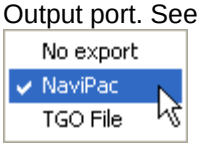
Interval 1-3 — Define the maximum allowed depth error (m) within each of the three intervals. If the new profile fails in one of the intervals a new profile is sent to the MBE system.

4.5.2.9 Cable Count Export



Port — Output port. See Port Settings

Export Format



NaviPac Format Description

4.5.2.9.1 NaviPac Format Description

ASCII text-string containing:

Horizontal length (L) to the Scanfish
Length of the cable (C) pulling the Scanfish
Current depth (D) of the Scanfish

All values are in meters.

Format:
L=<float> C=<float> D=<double><LF>

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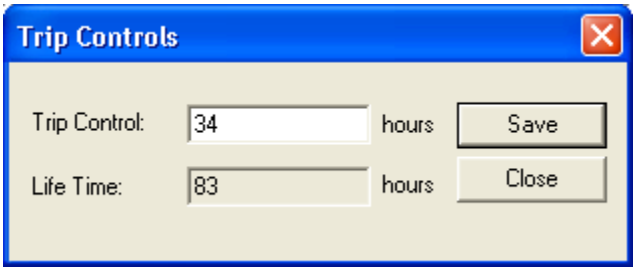
4.5.3 Trip Controls



This dialog displays the number of hours that the fish spend in the water.
Only the "Trip Control" can be manipulated.

ATTENTION:
- The fish is not considered to be "in water" unless it is 1.15 meters (or more) below the surface.
- The values are stored locally on the Scanfish Flight client computer.

5 NaviPac and ScanFish Flight software

This section gives a short description on how to use the EIVA NaviPac program together with the ScanFish software and exchange information between the two parts.

5.1 NaviPac in general

For a typical NaviPac and ScanFish operation we imaging that NaviPac is used for navigation of vessel and the ScanFish. This document describes how to set-up this in NaviPac. For details please refer to NaviPac set-up manual.
All set-up is performed via the NaviPac Setup program.

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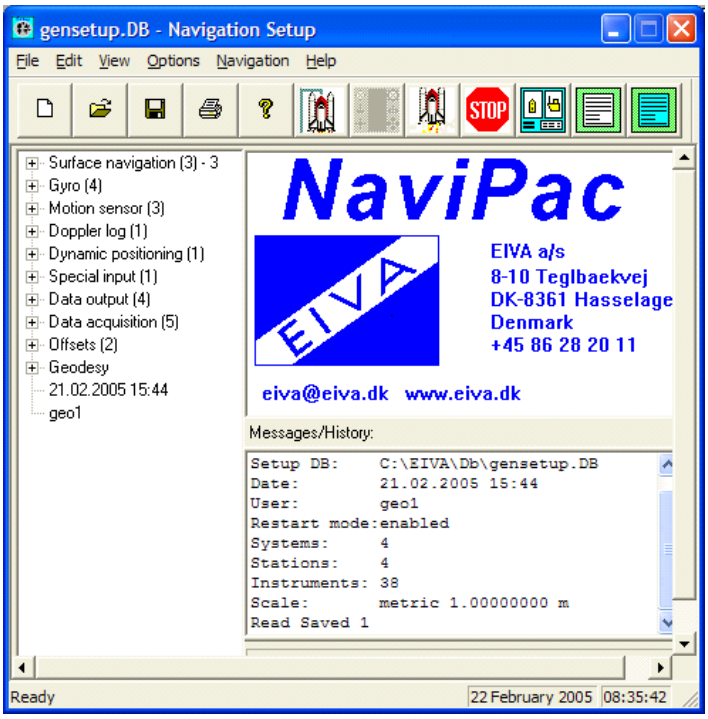

5.1.1 Position of vessel

To position the vessel it-self you must interface at lease a GPS receiver and a gyro/heading sensor. The latter can be set to calculated mode (using GPS course) if no direct source exists. The following set-up is based on a standard NMEA GPS (output $GPGGA) and a NMEA gyro ($HEHDT)

The NaviPac demo database includes two simulated GPS instruments:

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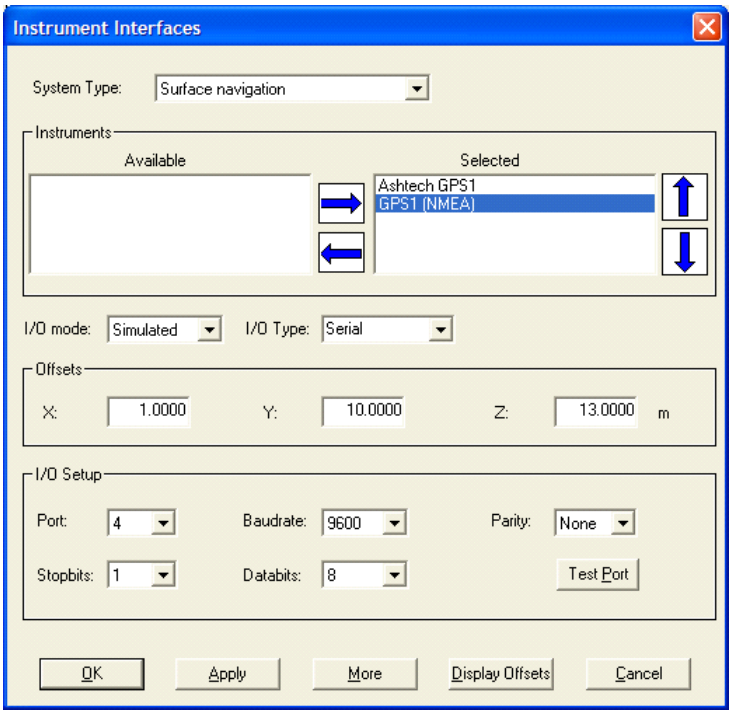
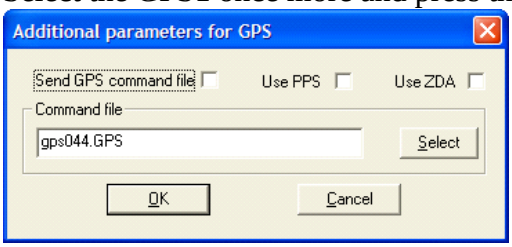


For most operations just use the GPS1 (NMEA) and move the other to the *Available* list. Select the GPS1 and set-up correct I/O settings and antenna location (relative to the wanted reference point). Press *Apply* after the input.

Select the GPS1 once more and press the *More* button:



Make sure that “Send GPS command file” is deselected.

After all of this accept by OK.

The demo database includes a NMEA gyro in simulated mode:

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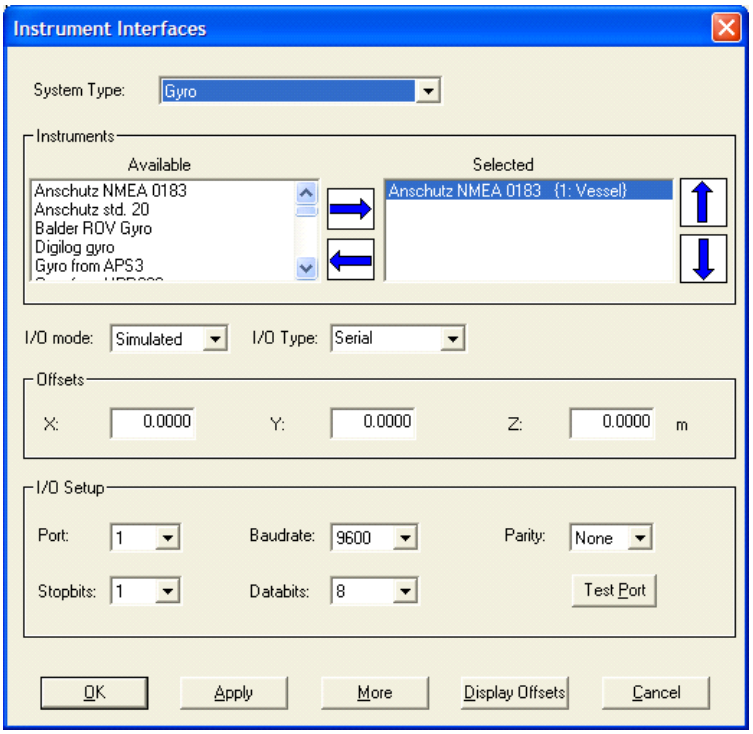
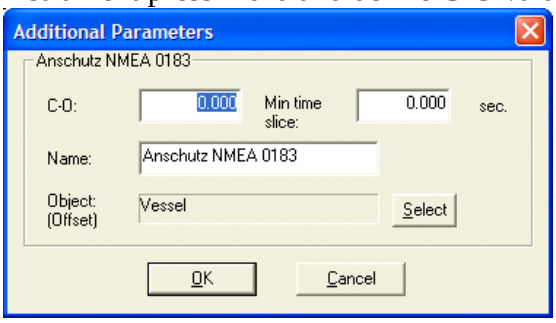


If you have a NMEA gyro onboard, then modify the I/O settings accordingly. Select the instrument press *More* and define C-O values if required:



If you haven't got a real gyro or compass, then use the NMEA gyro but set the I/O mode to *Calculated*. The system then uses the calculated course (from GPS) instead.
It the latter case, please make sure that the selected reference point is selected just below the GPS antenna.

You may now operate NaviPac in ordinary mode and navigate the vessel using all standard tools. Please refer to the dedicated online and display related manuals.

5.1.2 Manual position of fish

The ScanFish is towed after the vessel in a certain distance (cable out). If no online reading is available from cable counter or similar, then you may position the fish using a manual layback. This is done via two user-defined offsets in NaviPac:
* TowPoint Where the tow is assigned to the vessel
* ScanFish The fish itself

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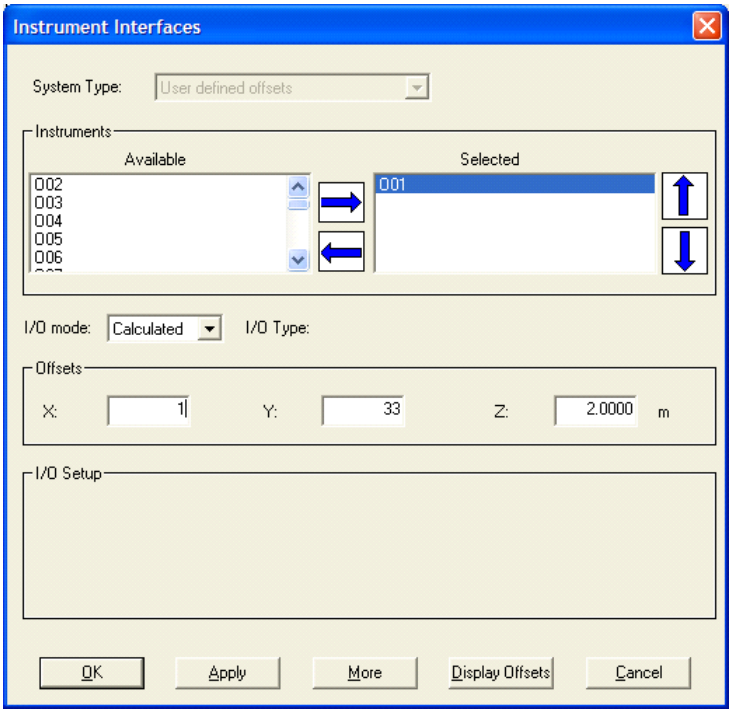
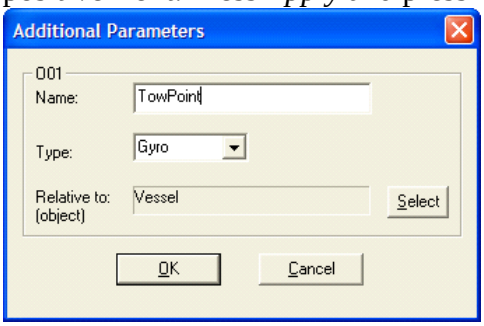
Select a user defined offset in NaviPac Instrument Interfaces



Enter the offsets from reference point to the tow point. X is positive to starboard and Y positive front. Press *Apply* and press *More*:



Enter a reasonable name, select Gyro method and make sure that *Relative to* is set to Vessel. If not please press “Select” and select Vessel. Accept by *OK*.

Now select yet an offset:

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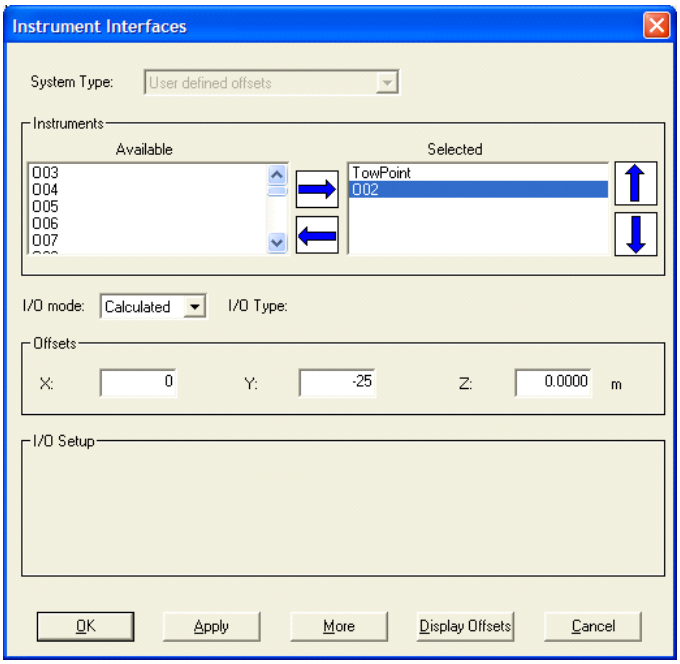
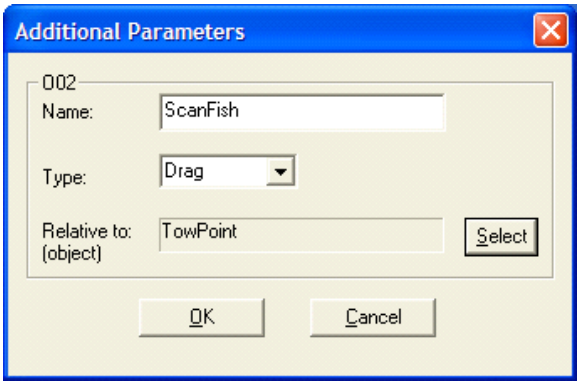


Set X and Z values to zero and set the Y value to negative version of the default cable out value (may be changed online). Accept by *Apply*.
Press *More*:



Enter a reasonable name, select *Drag* method and make sure that *Relative to* is set to TowPoint. If not please press "*Select*" and select Vessel. Accept by *OK*.

The two objects will hereafter be available during online navigation. The cable out value may be changed in NaviPac online using the menu: *Edit, User defined offsets*

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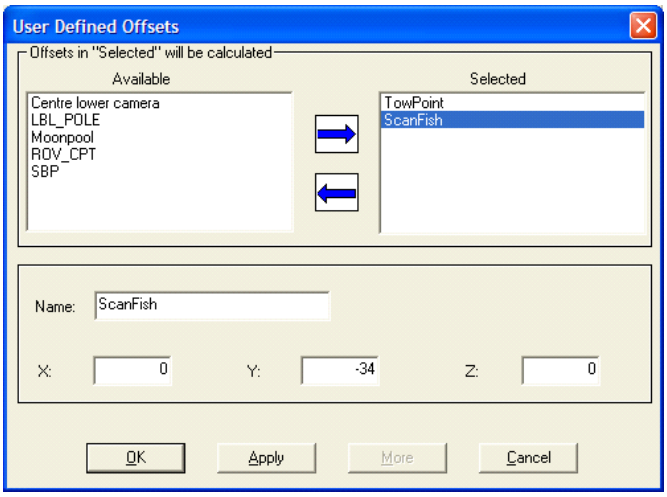

5.1.3 Dynamic position of fish

The manual layback is very depending on human interaction. A more efficient (and accurate) solution can be obtained by interfacing a cable counter directly in NaviPac.

NaviPac supports (3.4D) the following cable counters via a so-called generic cable counter input:

- Valeport pay-out indicator: “<sign><Distance>M<CR><LF>” – Set empty start string
- MacArtney MKII “L = ddd,d m <LF>” – Set “L” as start string
- Esters PMO 2160: Binary data – Set “<10:16,1,10,0,1,240,0,16,3,4>” as start to enable binary data and polling
- Hengel cable counter (“CNTlll.lll<cr><lf>”) set CNT as start string
- $CCAlll.ll<cr><lf> (Capital Signal) – Set $CCA as start string

Go into NaviPac Setup, Instrument Interfaces in the Dynamic positioning section:

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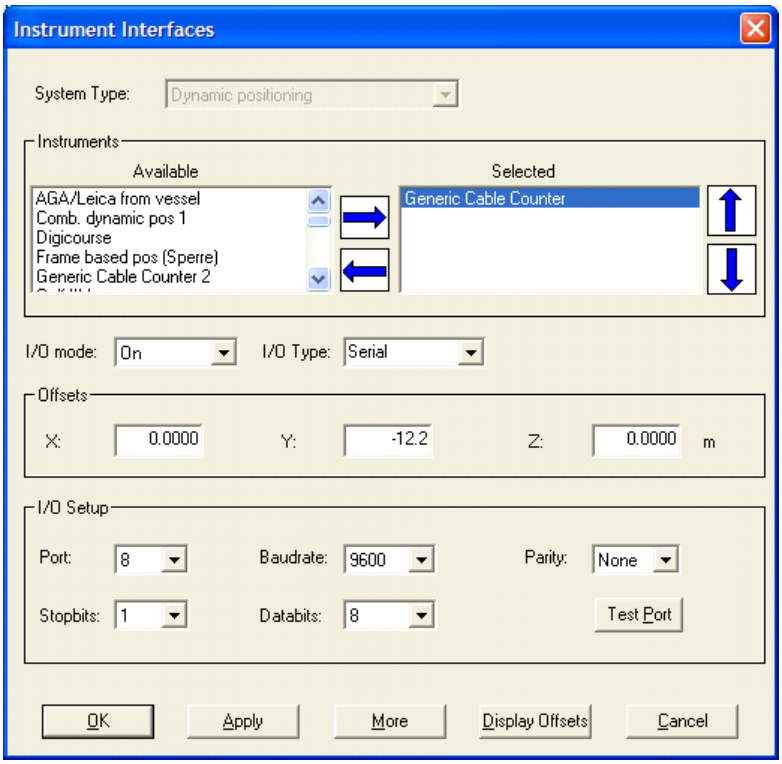
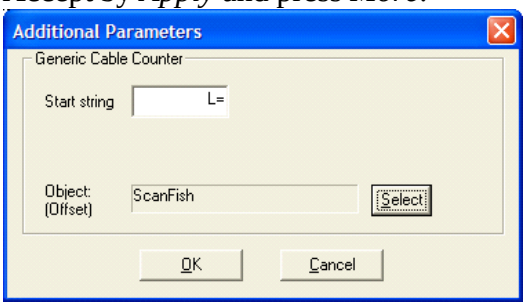


Select generic cable counter and specify correct I/O settings. The offset must be given ad offset from vessel reference point to the cable reference point (tow point).
Accept by *Apply* and press *More*.



Enter the start string corresponding to the instrument (see previous page for complete list) and select the object to position via the select button.

5.2 Sending data from NaviPac to ScanFish SW

Having positioned the fish as good a possible, the next option is to send this position to the ScanFish module.
This is done in NaviPac via a NMEA output:

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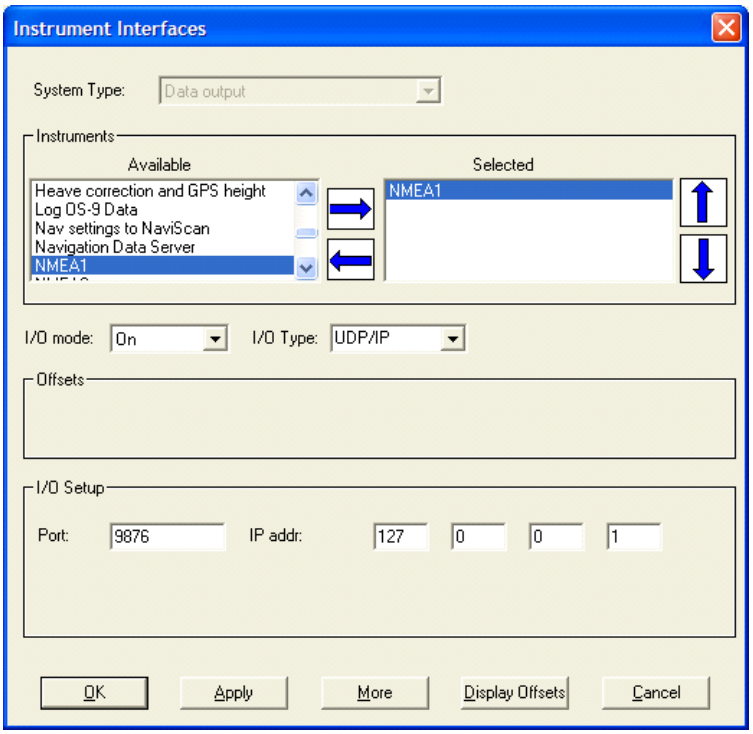
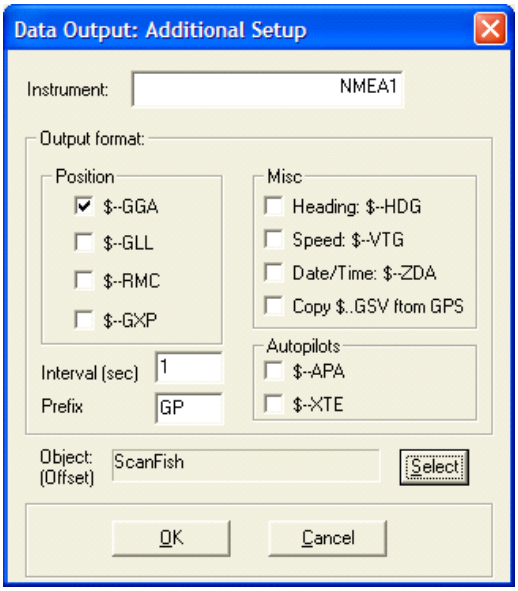


To save cabling work we recommend that this is done via a UDP/IP interface. If the two systems are running at the same computer, then use the 127.0.0.1 as address – otherwise enter the address of the computer running the ScanFish SW. The port number must be set identical to the selection in the ScanFish SW.
Press the “More” button:



Select the position format GGA, set interval to 1 and enter the prefix as GP.
Make sure that you have selected the ScanFish object,

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5.3 Reading data from ScanFish SW

The ScanFish software includes a dedicated data-recording format as described elsewhere. An alternative (and simpler way) might be obtained using NaviPac as the general recording system.
To do so you must set-up the ScanFish software to output the collected data (raw samples – not profiles) on either serial or network interface.

The data will be output with one string per measurement, and the layout will be like this:

```
“<Date>, <Time>, <Altimeter>, <Pressure>, <Bottom calc.>, <Echosounder>, <easting>,
<northing>, <roll angle>, <roll cmd>, <pitch angle>, <pitch cmd>, <temperature>, <backup
battery>, <Upside down>, <sound velocity>, <light under water>, <light deck>, <fluorescence
1>, <fluorescence 2>, <oxygen>, <flap angle port>, <flap angle starboard>, <turbidity>,
<Conductivity MMHO>, <Conductivity>,<PH>,<salinity>,<density><CR><LF>“
```

Date is formatted as "dd-mm-yy".
Time is formatted as "hh:mm:ss".
The remaining items are formatted as floating point ASCII numbers with as many digits as required depending on the data source.

Date and Time will always be filled in the string – the rest might be empty (as in NMEA telegrams)

In EIVA NaviPac terms the first item (date) is number 0, Time item 1, Altimeter item 2 etc.

The contents may vary from ScanFish to ScanFish, so there is no dedicated reader in NaviPac. Instead you must use the generic ScanFish acquisition driver in NaviPac. Prior to the set-up you must look at the string and decide which parameters you want to read. Each input in NaviPac supports up to three channels (a channel is one data item) - the driver may be repeated multiple times to read more variables.

Then go into instruments interfaces and add a User defined input in the data acquisition section.

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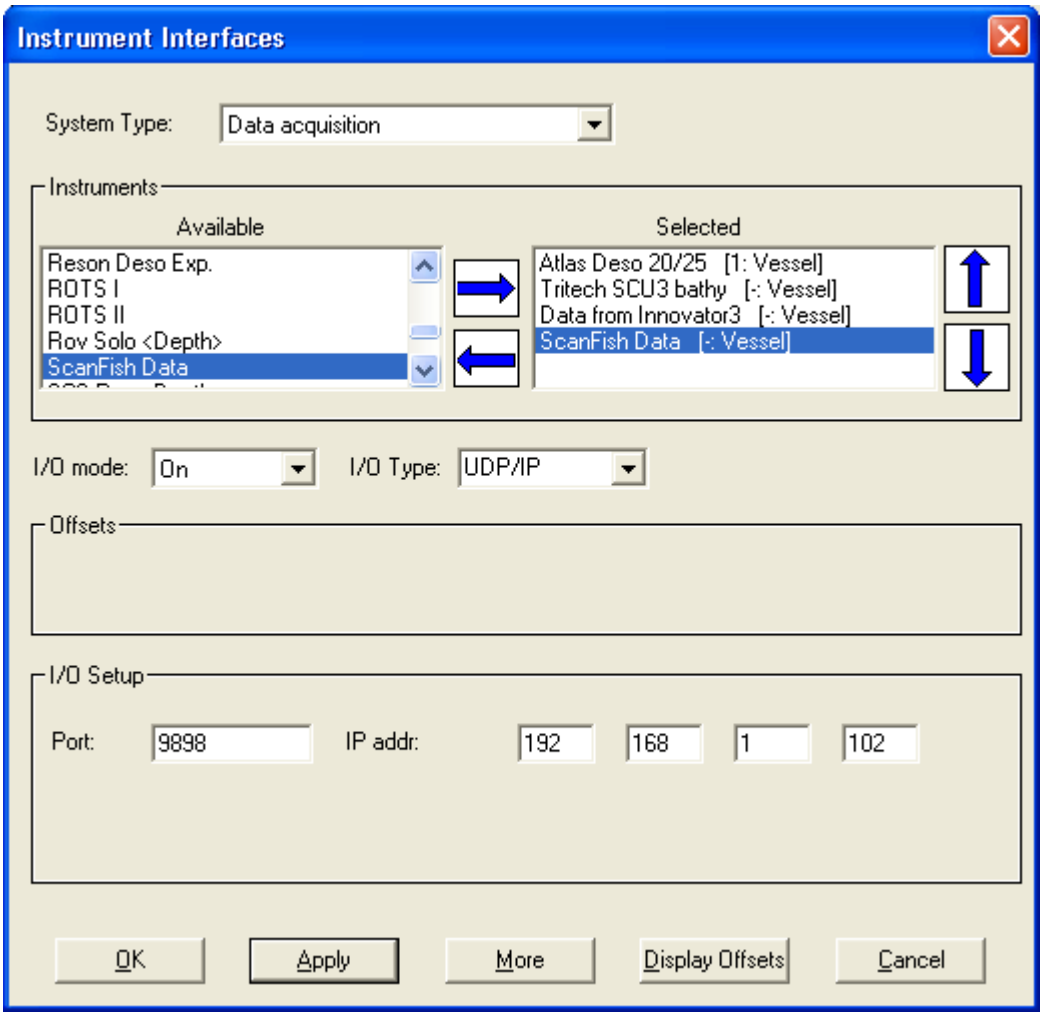

You must set-up the I/O mode correctly. Please note that the IP address must be specified carefully:

ScanFish is on the same computer	*Use 127.0.0.1*
ScanFish is on another computer	*Use the NaviPac computer address*

Next step is to define the input details and assign data to NaviPac variables. Select the instrument and press more:

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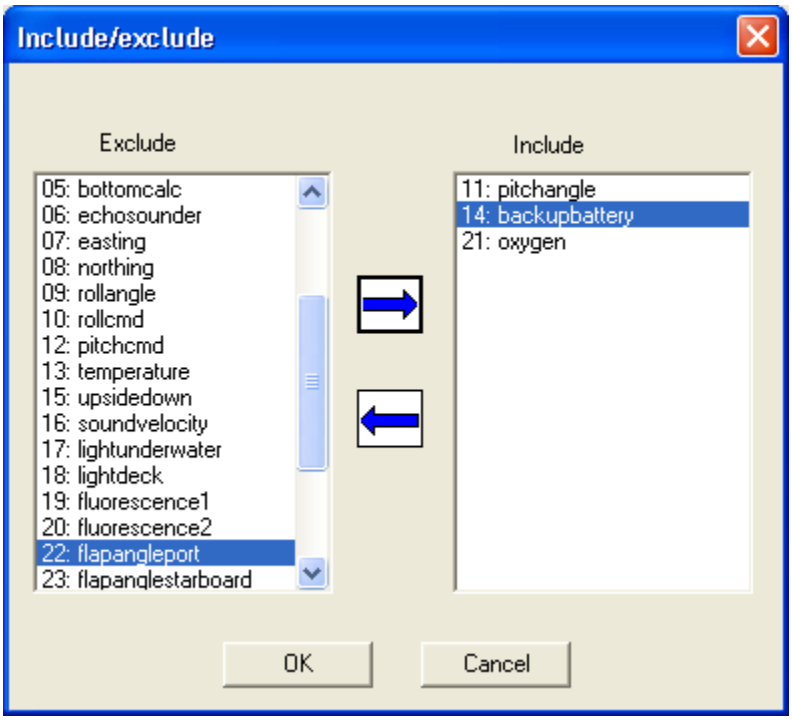
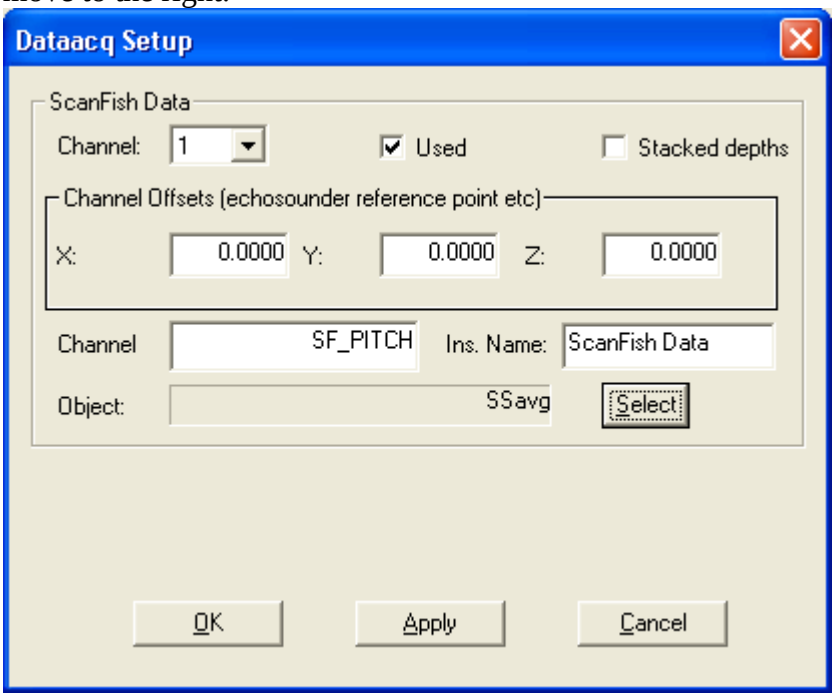


The left side of this window includes all available variables. Select up to three of them and move to the right.



In general you should set-up the following

- Ins. Name
  Give the instrument some reasonable name (eg. ScanFishData)
- Object
  Select the object that the data is associated with (the ScanFish)

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For each data item (channel in NaviPac terms) you must enter the following information

- Input item
  Give each parameter a reasonable name
- Used
  Must be checked
- Stacked depth
  Must be checked

In NaviPac online you may display the data in the DataAcq window and on top of the Helmsman's Display as any ordinary NaviPac data set.

To record the data use the NaviPac LogData application. The LogData offers three deifferent data formats

- General format
  Full data recording including raw data telegrams – mainly for debugging
- Survey format
  High level data format designed especially for import in the EIVA NaviEdit system
- Custom format
  A user defined ASCII layout for simple data processing

Full specification of the formats can be found in the LogData manual.

We do, in most cases, recommend the Custom format for ScanFish data recording. If you eg. want to store a simple ASCII file with the following information:

"Date & Time, Position, Altimeter, Temperature"

Where Altimeter and Temperature is from the ScanFish input.

Then the setup in LogData Custom format should look like the following:

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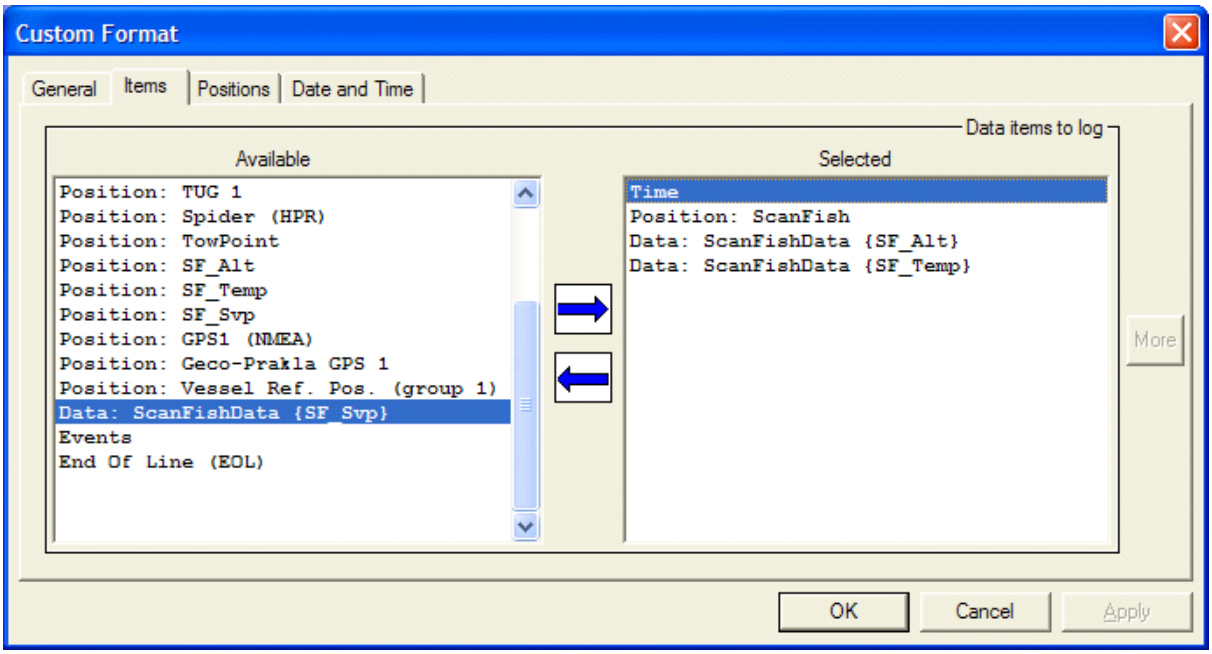
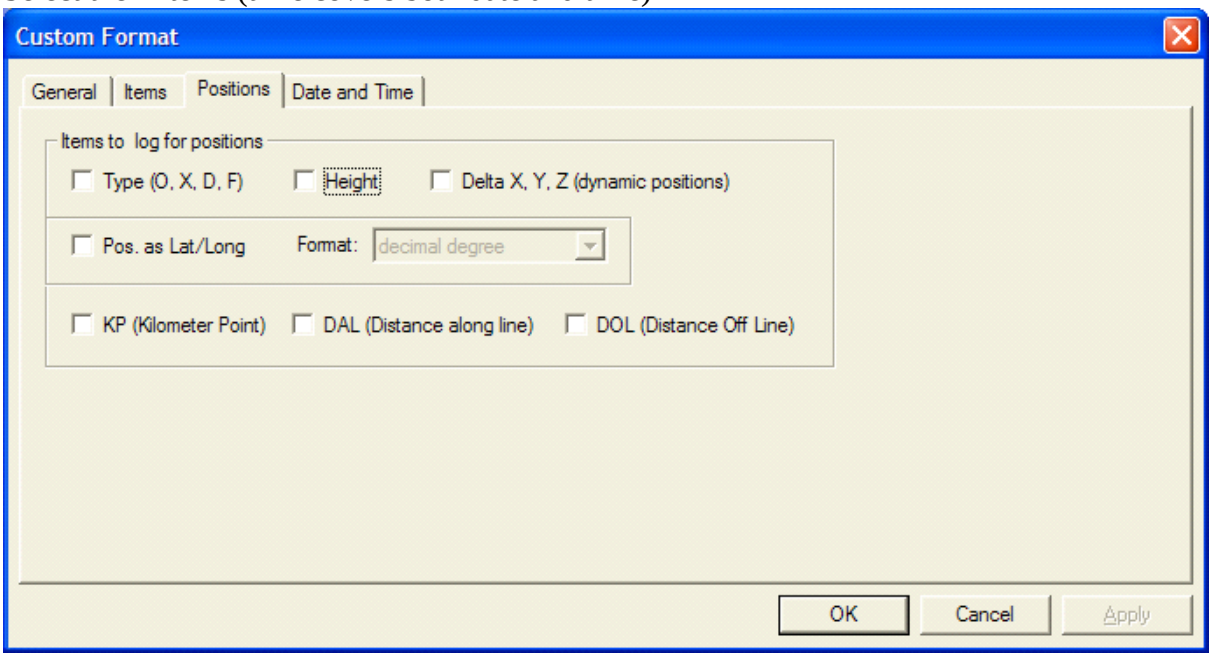


Select the 4 items (time covers both date and time)



If you want position as latitude and longitude then click it on

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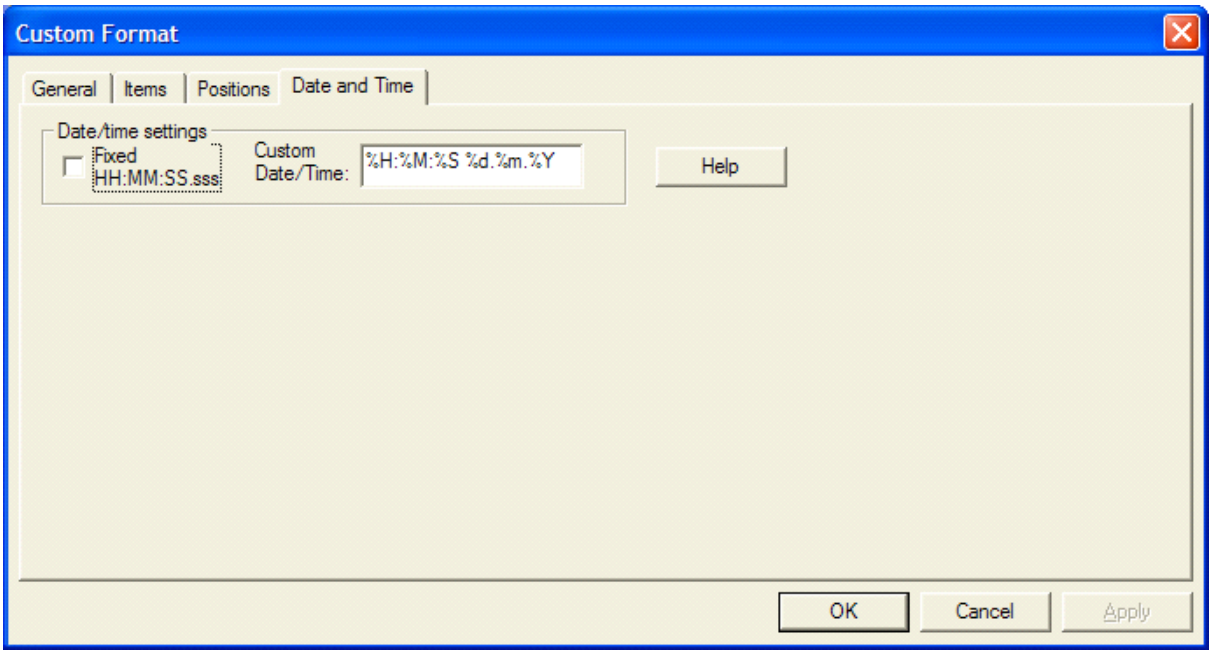
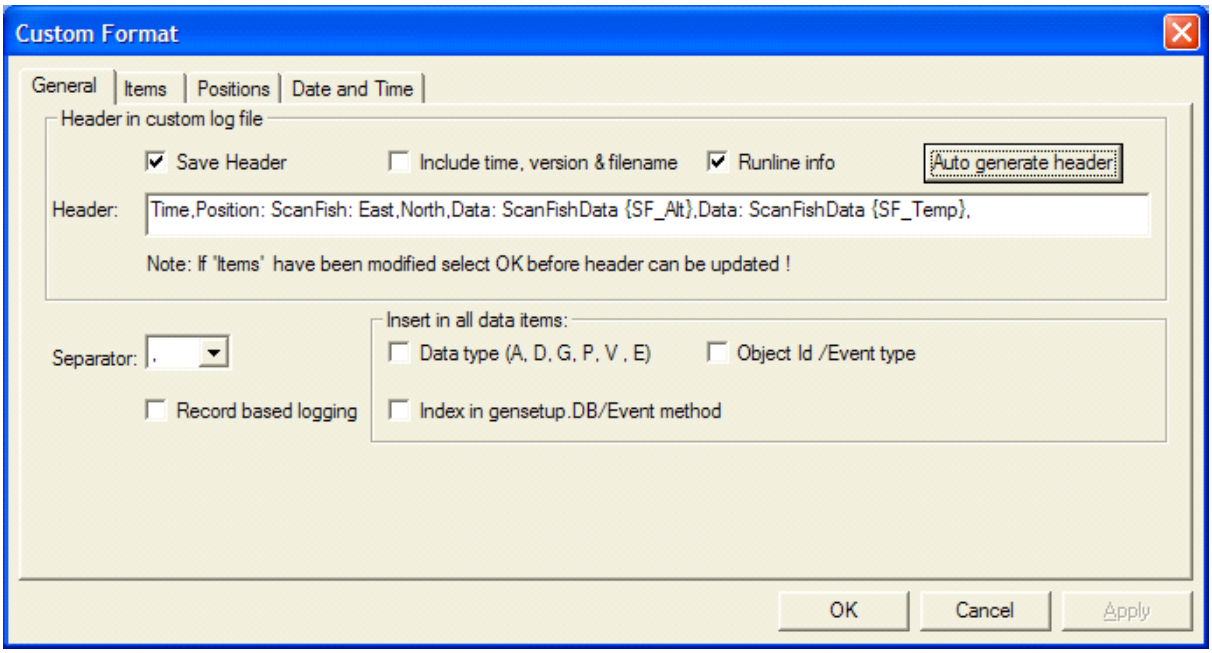


Specify layout of date/time field



Select Save header and press Auto generate header

Hereafter go into the general File, Setup Logging dialogue:

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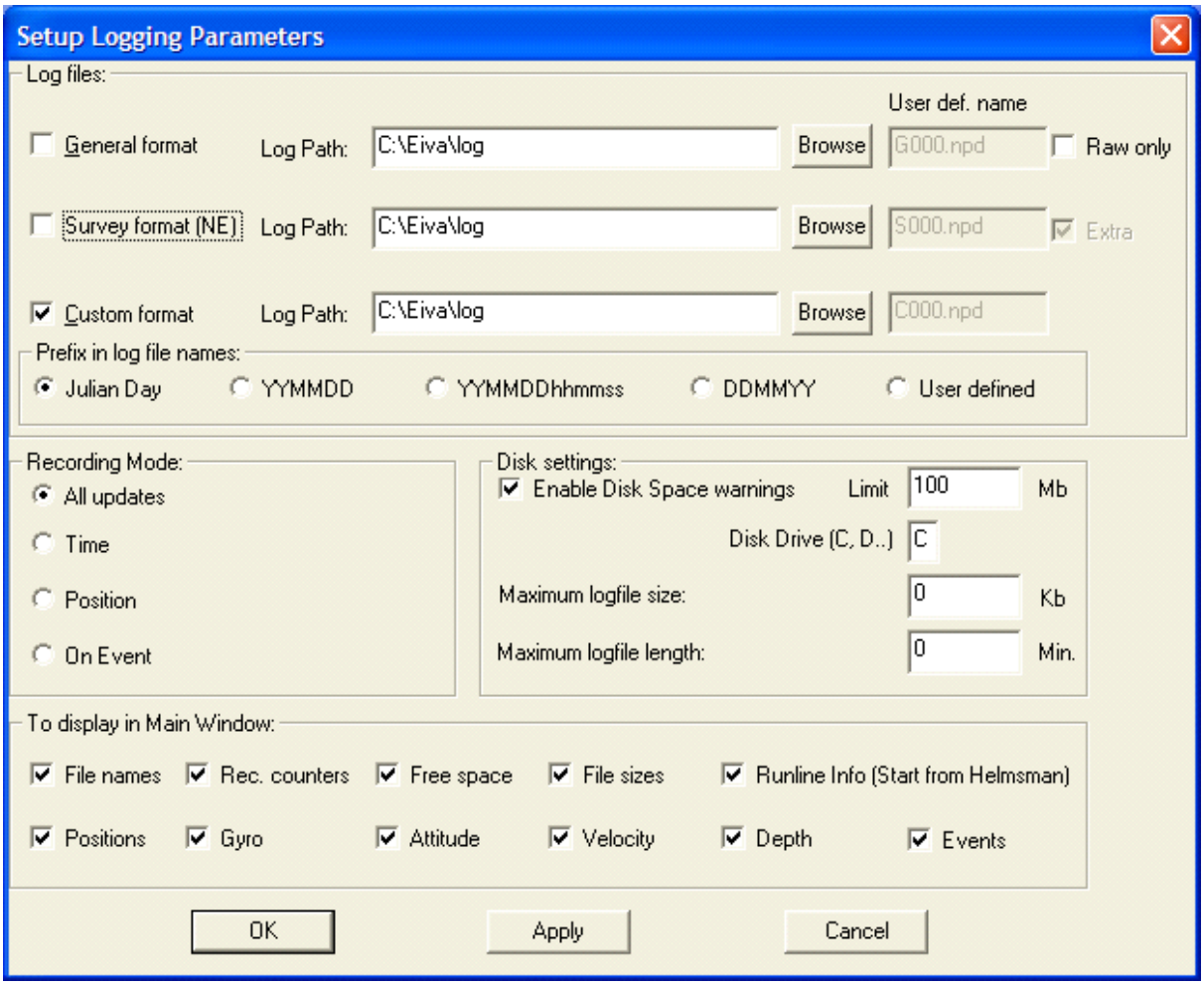
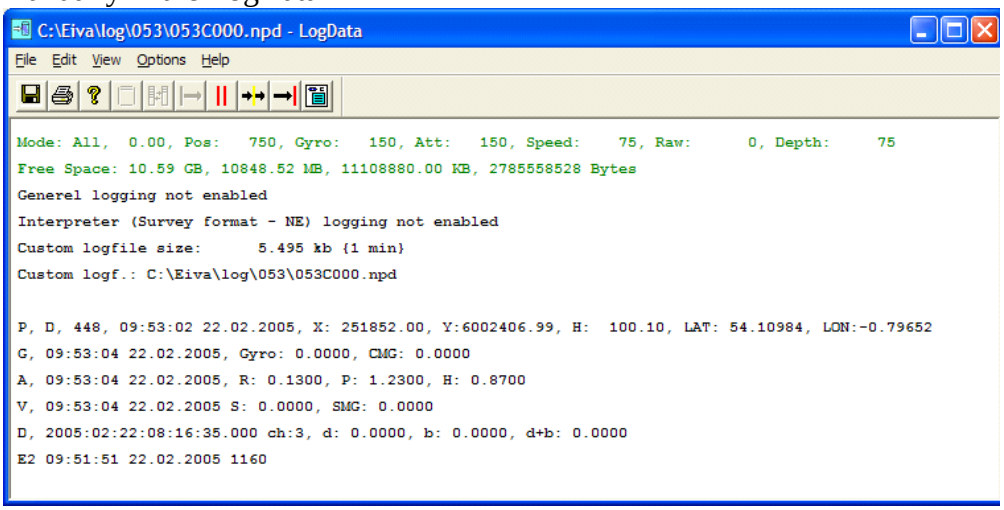


Select the wanted format and specify location.

Remember to save the settings (in the File menu) after set-up.
Recording can then be started using either auto start from the Helmsman's Display or manually in the LogData



The data will then be recorded as:

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```
Time,Position: ScanFish: East,North,Data: ScanFishData {SF_Alt},Data:
ScanFishData {SF_Temp},
09:51:50 22.02.2005,  251849.2693,6002356.0654,     9.3000,  1487.9000
09:51:51 22.02.2005,  251849.2693,6002356.0654,     9.2500,  1488.0000
09:51:52 22.02.2005,  251849.2693,6002356.0654,     9.2300,  1487.8000
09:51:53 22.02.2005,  251849.2693,6002356.0654,     9.2100,  1487.7000
```

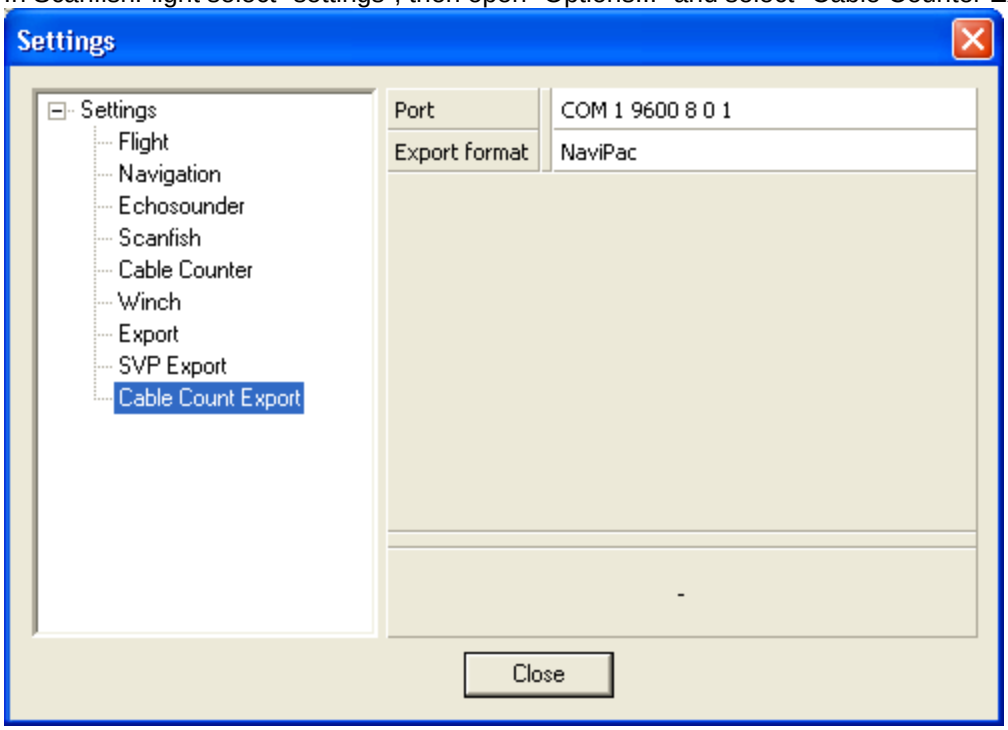
5.4 Export Cable Counter to NaviPac

The cable counter data acquired by Scanfish SW can be used in NaviPac as generic cable counter input.

ATTENTION: To support the format of a generic cable counter, the exported value is NOT HOW MUCH cable has left the winch, but rather an approximation of the distance to the ScanFish probe. Cable length and probe depth is included in the package send to NaviPac, but is not used by default. See NaviPac Format Description for details on the transmitted data-packets.

Scanfish Flight setup

1. In ScanfishFlight select "settings", then open "Options..." and select "Cable Counter Export"



2. Set the "Port" attribute to use an UDP port and enter the IP address and port number to contact the computer running NaviPac on.

3. Set the "Export format" to "NaviPac".

NaviPac setup

1. Go into instruments interfaces and add a "Generic Cable Counter" in the "Dynamic Positioning" section.

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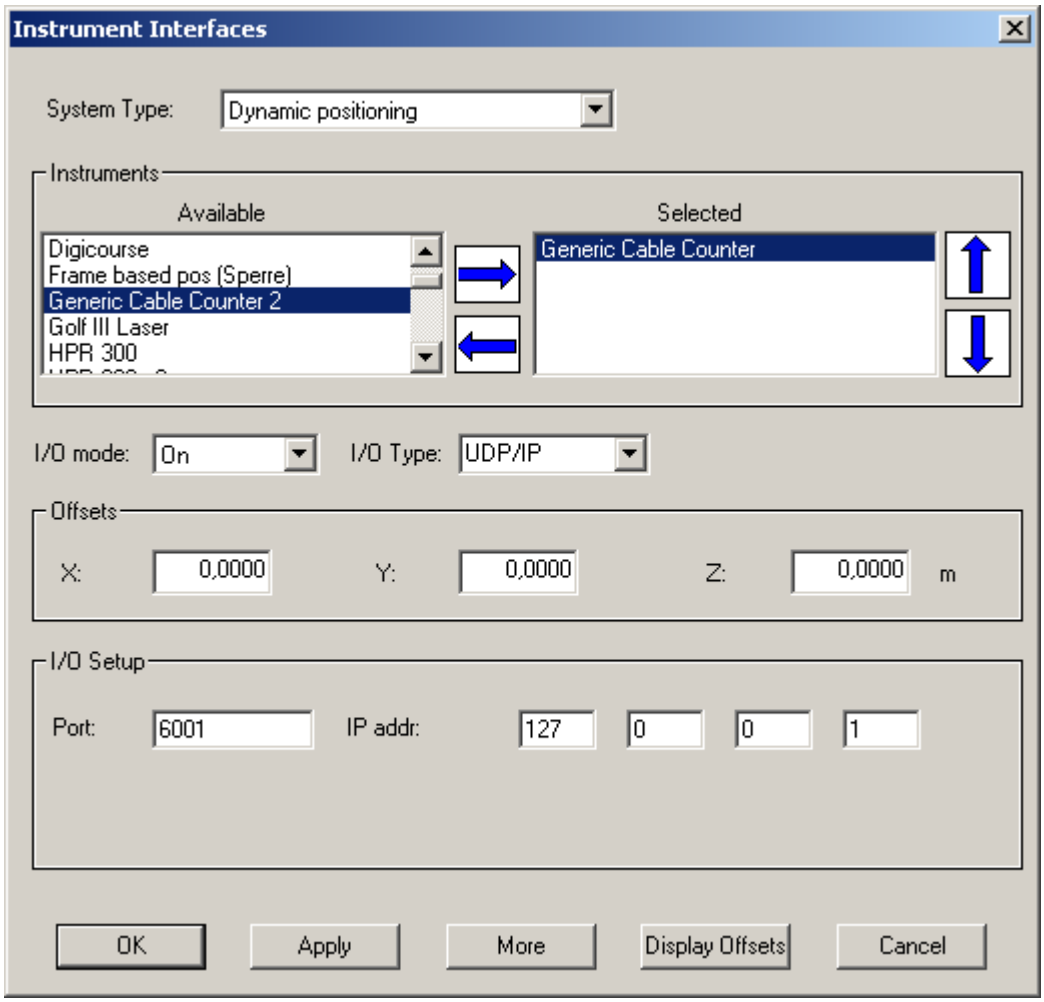
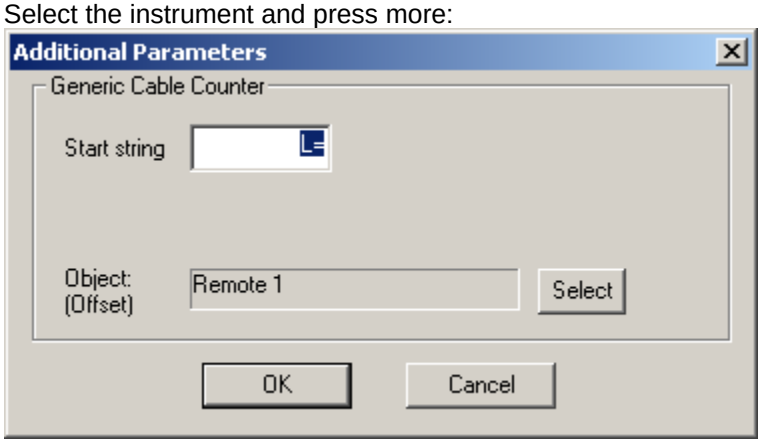


You must set-up the I/O mode to UDP. Please note that the IP address must be specified carefully:

ScanFish is on the same computer	*Use 127.0.0.1*
ScanFish is on another computer	*Use the NaviPac computer address*

2. Next step is to define the input details.
   Select the instrument and press more:



3. Edit the "Start string" field to be "L=" as on the picture above and press "OK".
4. Save the Settings and start NaviPac.

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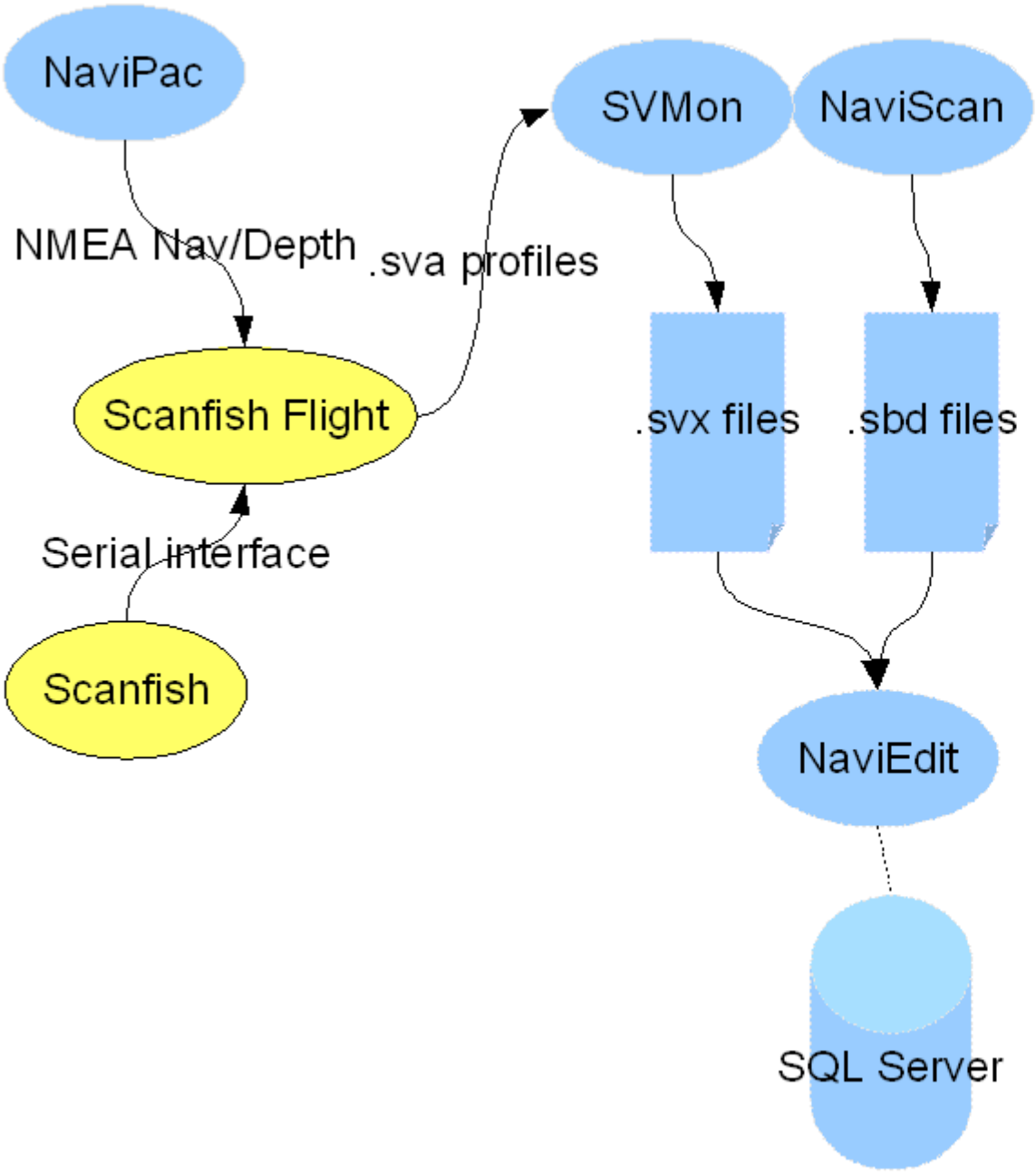
5.5 Collecting profiles for NaviScan

This drawing shows a typical setup for using the Scanfish to collect online profiles for use in NaviScan.

The Flight software collects profiles adding the current time and position and sends them out on the local network.

The application 'SVMon' from the NaviScan suite reads the profiles and applies them immediately in the NaviScan software. Each received profile is append to .svx files to be used in the post-processing.



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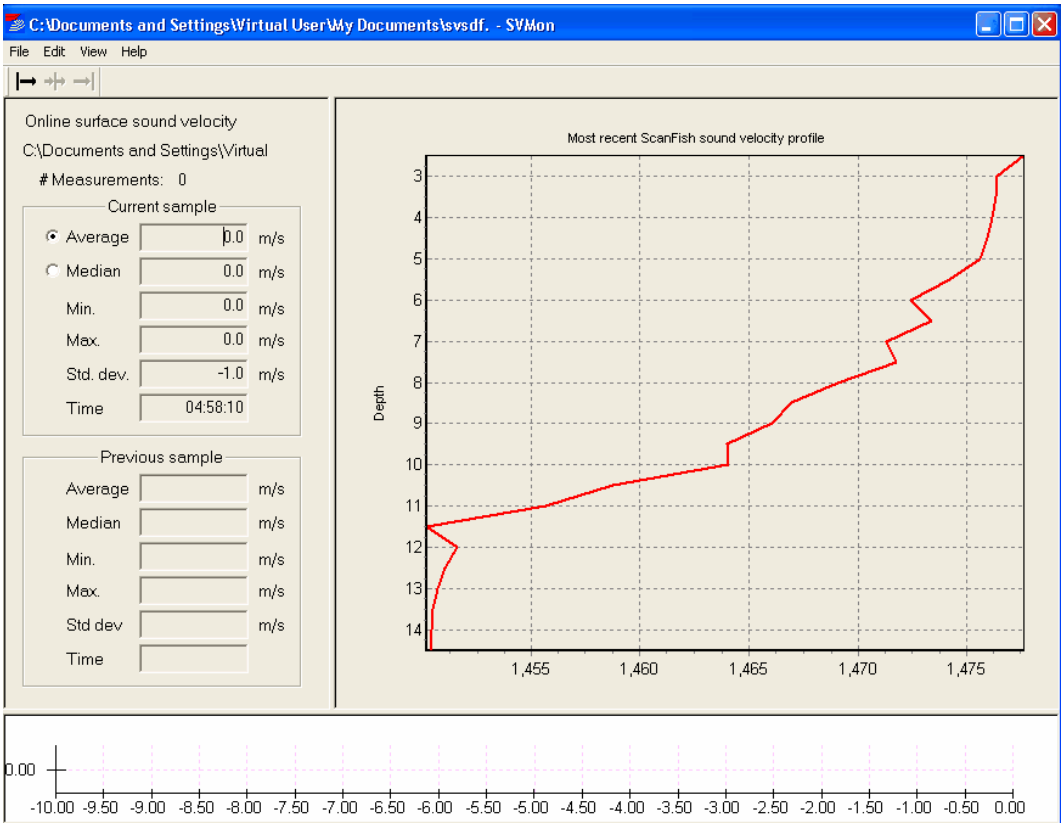
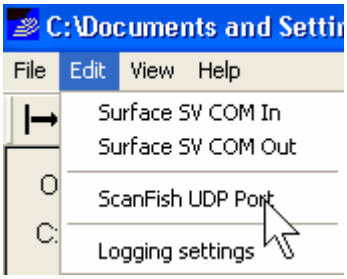
5.5.1 SVMon setup

The SVMon application is able to receive profiles on the local area network.


C:\Documents and Settings\Virtual User\My Documents\svsdf. - SVMon
File Edit View Help
Online surface sound velocity
C:\Documents and Settings\Virtual
Measurements: 0
Current sample
Average 0.0 m/s
Median 0.0 m/s
Min. 0.0 m/s
Max. 0.0 m/s
Std. dev. -1.0 m/s
Time 04:58:10
Previous sample
Average m/s
Median m/s
Min. m/s
Max. m/s
Std dev m/s
Time
Most recent ScanFish sound velocity profile
Depth
3 4 5 6 7 8 9 10 11 12 13 14
1,455 1,460 1,465 1,470 1,475
0.00
-10.00 -9.50 -9.00 -8.50 -8.00 -7.50 -7.00 -6.50 -6.00 -5.50 -5.00 -4.50 -4.00 -3.50 -3.00 -2.50 -2.00 -1.50 -1.00 -0.50 0.00

Goto the 'Edit' menu and select 'Scanfish UDP port'.



Select 'UDP/IP' port and type in the address of the computer running the Scanfish Flight program. Choose a port number as well.

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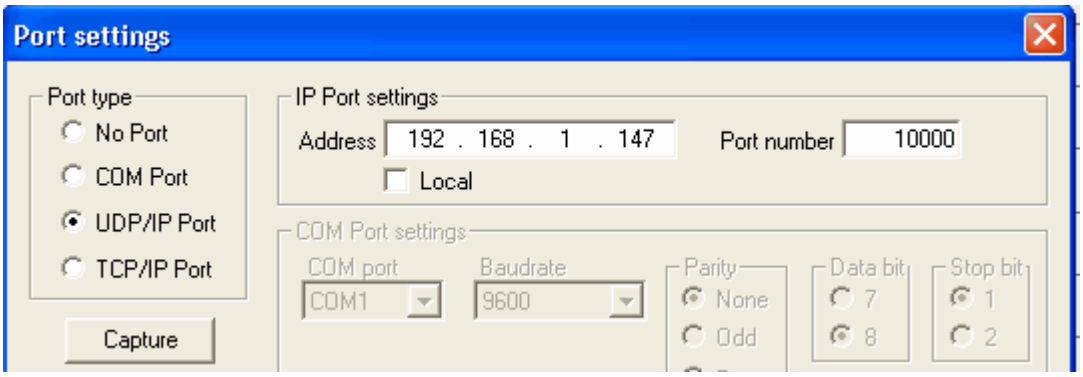
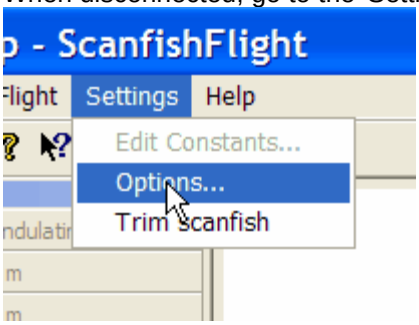


The program is now ready to receive profiles from Scanfish flight.

5.5.2 Setup profile output

The flight software maintains a CTD profile continuously. The Flight program will send a snapshot of this profile when activated in the settings.

When disconnected, go to the 'Settings-Options...' menu.



Choose the 'SVP Export' node. And fill in the IP address and port of the computer running SVMon/ NaviScan. Make sure you use the same portnumber as entered in the SVMon application.

The option 'Use Eeg filter' will reduce the number of profiles transmitted to NaviScan by comparing the profiles and discarding those with insignificant changes.

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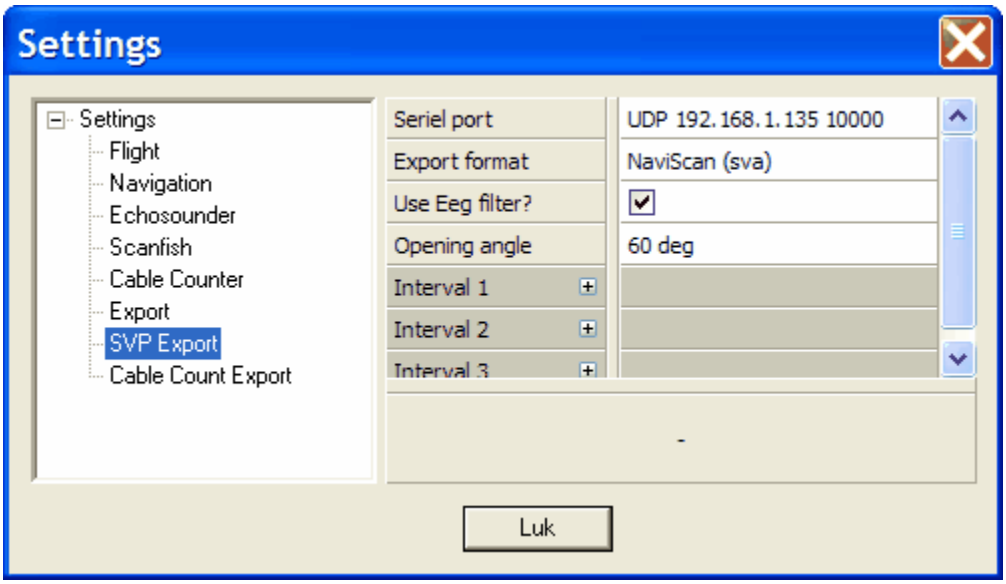
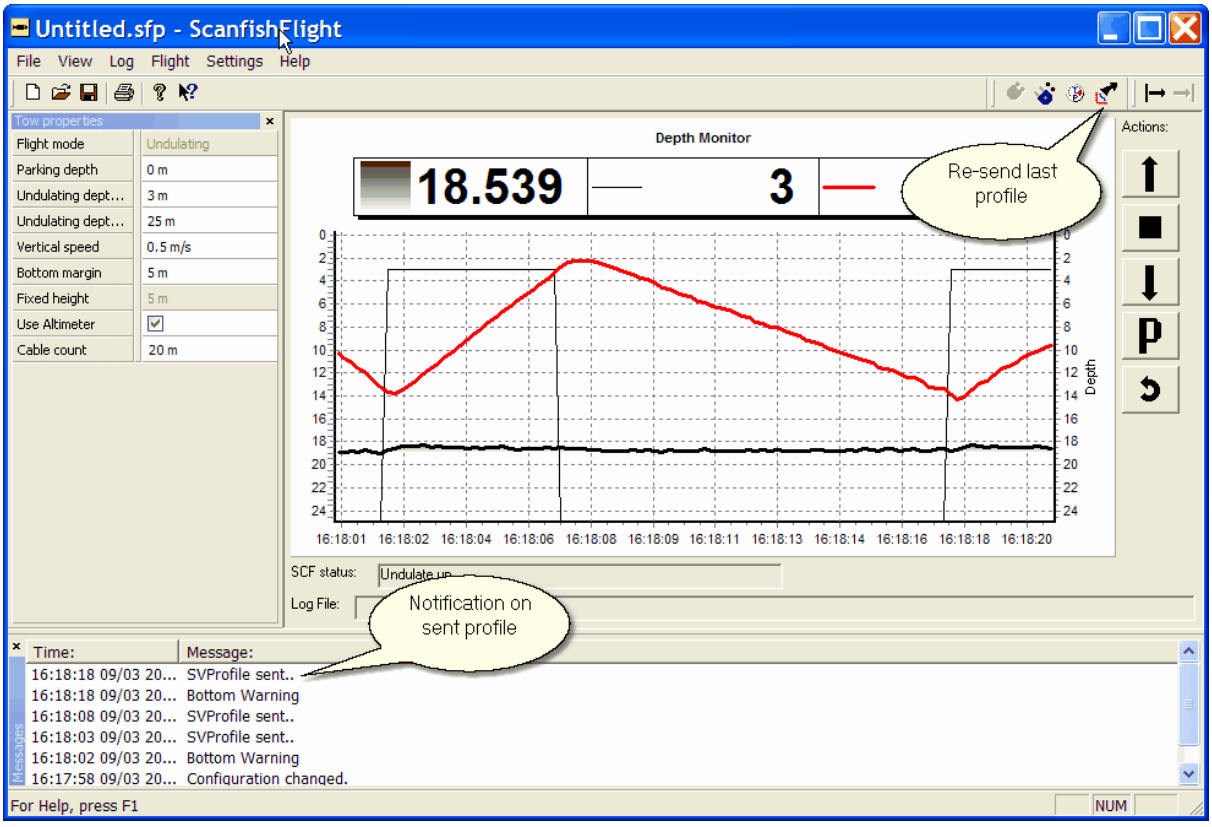


The profiles will be sent out when the fish is undulating. A profile is completed at each turn and will be sent out unless it is discarded by the filter.

The profile last completed can be sent out manually by pushing the 'Send profile' button in the toolbar. Each a profile is transmitted an entry will appear in the message pane. You are also notified if a profile is discarded by the filter.



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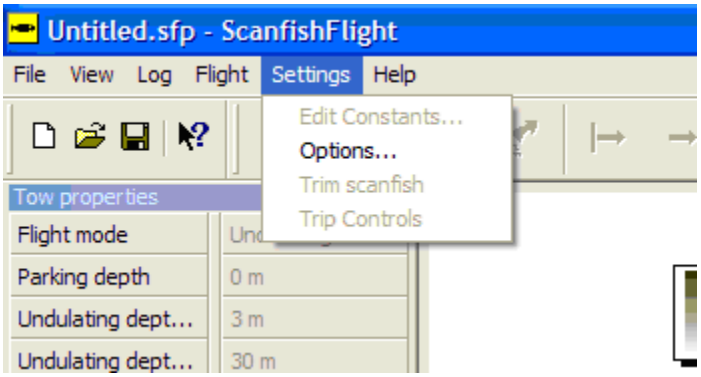
6 Special Features

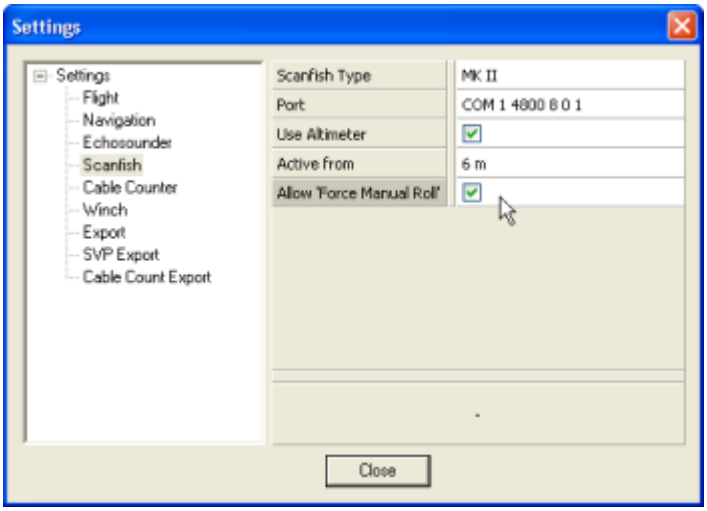
This chapter covers how to use the special features added to Scanfish Flight in order to support one or more specific customer requests.

6.1 Force Manual Roll

The "Force Manual Roll" feature allows the operator to "force" the fish to roll towards either Port or Starboard side.

To be able to use “Force Manual Roll” you need to tick this feature on in the menu:
Settings =>
Options =>
Scanfish





The next time you connect to the Scanfish, the 2 buttons in the upper right corner become active. Note: the buttons must be held down for the entire duration in which the fish is supposed to roll. When a button is released the fish will attempt to level out as during normal use.

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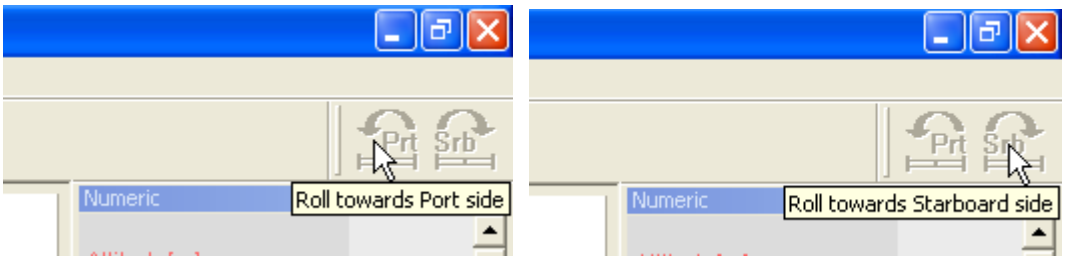
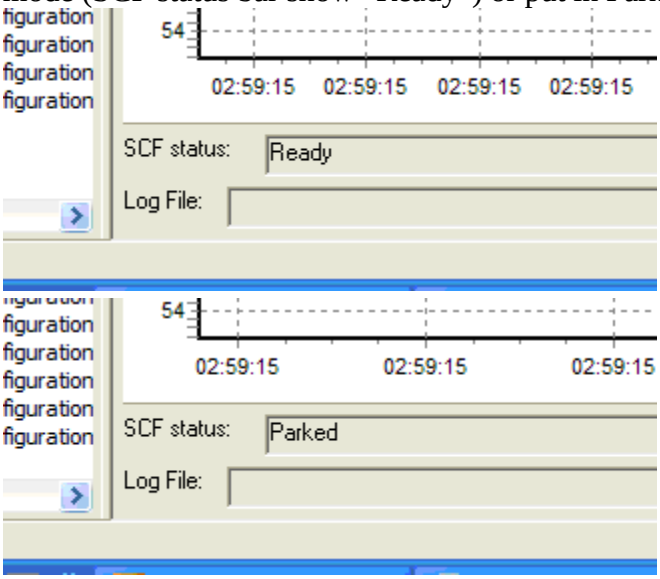


The Roll towards xx side is only possible to use when the Scanfish is stopped from any Flight mode (SCF status bar show “Ready”) or put in Parking (SCF status bar show “Parked”).



6.2 Ship E/S as Altimeter

ATTENTION: it is NOT recommended to use this feature unless you are surveying in an area where the nature of the seabed is known to be relatively flat.

Instead of using the altimeter on the fish to avoid bottom collision you can select to use the ships echo sounder. This can be useful to compensate for misreadings caused by turbulent water. For instance in situations where you want to run the survey at very high speeds near the water surface.

In undulation mode:
If water depth decreases and the actual depth recorded by the ships echo sounder approaches the depth of the lower turning point (undulating depth max) of the preset diving curve, the software lifts the lower turning point automatically to an uncritical depth. This is the depth of the echo sounder minus the bottom margin. The undulating mode will be continued unless the lower turning point reaches the upper turning point, in which case the fish will go into parking mode!

If the ship approaches increasing water depths, the new setting of the lower turning point will be adjusted manually!

In fixed depth mode:
If water depth decreases and the actual depth recorded by the ships echo sounder approaches the depth at which the fish is operating, the software lifts the operating depth automatically to an uncritical

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depth. This is the depth of the echo sounder minus the bottom margin. The fixed depth mode will be continued!

If the ship approaches increasing water depths, the new setting of the lower turning point will be adjusted manually!

Notes:

- You cannot have the altimeter of the fish activated and use this feature at the same time.
- The "fixed hight" mode requires that the altimeter is active and does NOT work when using this feature.

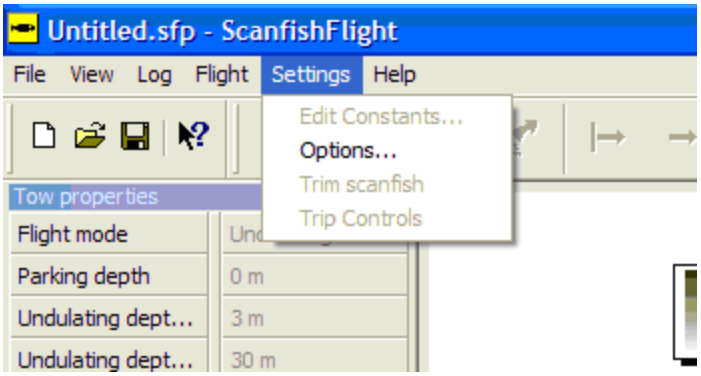
How to:

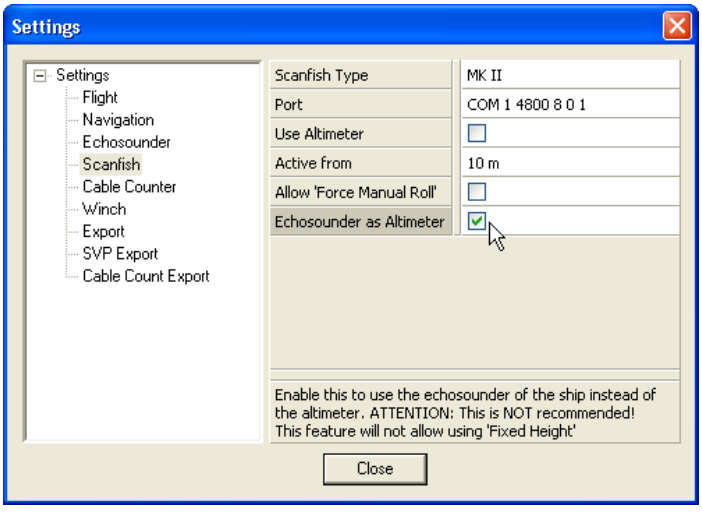
To be able to use the ship echo sounder as altimeter you need to tick the feature on in the settings menu:

Settings =>

Options =>

Scanfish





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7 Troubleshot

No special considerations in current version.

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